Sportsman Pilot™

Summer 1981

Sportsman Pilot

VOLUME 1 SUMMER 1981 NUMBER 2

ALL ARTICLES AND PICTURES BY JACK COX UNLESS OTHERWISE CREDITED.

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Sportsman Pilot is published quarterly by Sportsman Pilot, 3965 West College Ave., Milwaukee, Wisconsin 53221. Postmaster: Send address changes and all other correspondence to P.O. Box 485, Hales Corners, Wisconsin 53130.

One year subscription rate for U. S. is $7.50; Canada, Mexico and overseas $8.50, payable in U. S. currency only. Address subscriptions and correspondence to: Sportsman Pilot, P.O. Box 485, Hales Corners, WI 53130.

Application to mail at Second Class postage rates is pending at Milwaukee, Wisconsin 53203 and other post offices.

Mag Check

"Californie is th' place yuh oughta be!"

At least that's what they used to tell Jed Clampett . . . and if you are involved in any way with aviation, you can hardly avoid the place. If you are a sport aviation enthusiast, it is impossible. So many of our designers of homebuilts are from California and so much in the way of parts, materials and components come from the Golden State that . . . well, now we know where it got its nickname. We send all ours out there!

California has an enormous influence on aviation. Just in terms of numbers, it has over 12% of all the airplanes and almost 15% of all the pilots in the U. S. The next closest state, Texas, has roughly **half** the pilots and aircraft registered in California. The rest aren't even close. And more to the point for most of us, California, with close to 8,000 EAA members, represents 11% of that organization's total membership. That's more than the combined total of ALL EAA members from outside the U. S. Yes, that includes Canada.

And true to form, I suppose, California has, to date, supplied more subscribers to this magazine than any other state.

Now, the reason I'm spouting all these statistics is to prepare you for the fact that what you are about to read is virtually an all-California issue. In late May, Golda and I took one of Republic's Kerosene Komets to Orange County, where we were met by Ken and Marie Brock. Within minutes they had whisked us away in their Turbo 210, and, shortly, we were landing in Bakersfield, where a number of EAAers rendezvous every year for a mass flight the following morning to Watsonville and its annual fly-in.

We spent a long weekend enjoying this great event, then returned to Los Angeles to spend the following week. We ventured out each day to a different designer's lair, visited several builders' projects and motored down to San Diego one morning to see their reincarnated air museum. Literally on the run from morning 'til night, we, nevertheless, didn't really scratch the surface of Southern California sport aviation activity. We plan to go back, though, and try our best to pluck a few more of those golden nuggets (of news) and bring 'em back so all our readers can enjoy them, vicariously, through the pages of SPORTSMAN PILOT.

Golda and I sincerely thank Ken and Marie Brock for their tremendous hospitality during our stay in California, as well as all the rest of you who took time off from your work or play to show us around, pose for pictures and be pestered by a bunch of questions.

As far as I'm concerned, Jed Clampett, those folks were giving you some mighty good advice!

KALEIDOSCOPE

ABOUT YOUR MAILING LABEL . . . ONE MORE TIME

No, friends, unless your name is Mildred Reidenbach, you are NOT the #2 subscriber to **Sportsman Pilot**! Yes, every single one of you on the original mail-out had 02/01/82 on your labels . . . darn it! Without bothering to consult their paying customer, the computer outfit that prints our labels decided to abbreviate **our** code so they would have more room for **their** program code — that's the gobbledy-goop just above your name on the label. The first we knew about it was when our own checking copy arrived through the mail . . . it was supposed to be #1,000. Oh well, you know what the poet said about "best laid plans, etc., etc." We have been assured that this mess will be straightened out on the labels for this issue . . . so, again, (cross our fingers!) the first digits in the code will represent your subscription number and the 2/82 or 5/82 will be the month you receive your last issue of this subscription.

RETURN OF THE IMP

Everyone is aware of Molt Taylor's MiniIMP and new MicroIMP, or "paper airplane" as he likes to call it. But how many of you remember the first of these inverted V-tailed pushers, the IMP? Larger than the Mini and Micro IMPs, the two-place IMP was to be powered by a 130 hp Franklin Sport Four — that is, until Franklin went into limbo. Poland eventually bought the rights, but just now is getting engines back into the pipeline. Meanwhile, the IMP languished. Designed around the bed-type Franklin engine mount, it was no simple matter for Molt to substitute a Lycoming or Continental. Virtually a complete redesign and rebuilding of the fuselage would be necessary to accommodate either. Disgusted, Molt simply parked the IMP and moved on to the VW (and small Continental) powered MiniIMP . . . and now the Citroen powered MicroIMP.

A couple of years ago, Molt's good friend, Warren Eding of St. Louis, came to the rescue of the by now dusty and forlorn IMP. He expressed an interest in completing the airplane — and making it 4-place in the process. Molt was delighted, so the two got their heads together, came up with a plan for the mods and soon Warren was towing the IMP eastward to Missouri.

This summer, Warren is nearing completion of the rebuild. The changes have been extensive and include:

1. A fully adjustable tail (like on the MiniIMP) for trimming the airplane.

2. A new vertical fin (fixed), as on Pat Hart's MiniIMP.

3. Replaced the original paralleogram main gear with a leaf type. Ultimately a MiniIMP type that folds up into the wing root will be fitted.

4. Added a 30 inch plug to the forward fuselage. This has made the IMP a "2+2" — two place and lots of baggage or 4 place and no baggage.

5. Entry/exit is now via an "airstair" split door. The lower half folds down and doubles as a stair, the top half swings up "gullwing" fashion. The front seats are on rails, sliding back for entry/exit and forward for flight.

6. The Franklin Sport 4 will be retained for initial flight testing, but, ultimately, a converted Franklin 220 hp helicopter engine will be installed. Only ½ inch longer than the Sport Four, the 220 does not have a prop flange on the crankshaft, making it easier to attach the Flexidyne coupling and drive shaft.

7. The Sport Four will turn a converted Beech Roby propeller. Something new will be devised for the 220.

Those of you who remember Warren Eding's magnificent Coot at Oshkosh in the mid-70s know the IMP is in the very best of hands. It will be a beauty!

NEW HISTORIC AVIATION CATALOG

Jim Horne has recently printed a new catalog for his aviation (and auto) book business, Historic Aviation. He stocks about everything worth reading in the aviation line and has added 34 new titles in his Summer 1981 edition. Included are **Waco, The Versatile Cabin Series** by Ray Brandly and the **Guide To Rutan Homebuilt Aircraft** by Don Downie. An old favorite, **Mr. Piper and His Cubs** by Devon Francis is back in stock. The Summer 1981 catalog is from —
Historic Aviation, 3850 Coronation Rd., Eagan, MN 55122.

THE JAPANESE SYNDROME

Dick Cavin, who edits both (Dallas) EAA Chapter 168's excellent newsletter and the T-18 Newsletter, makes an interesting point: despite the inarguable fact that homebuilding is presently deep into the Composite Age, a lot of the old faithfuls are still going strong . . . in fact, better than ever. Since John Thorp announced the T-18 in 1962, over 1,450 sets of plans have been sold and over 300 of the little bent-wing wonders have flown. Another 300 are known to be under "active" construction. Actually, there seems to be a sort of resurgence of interest in the T-18 in the last few years — due, most "insiders" like Dick believe, to the fact that between Ken Brock and Ken Knowles, virtually every airframe part, assembly and component can be purchased. Glenn Breitsprecher supplies the canopies and Lycoming engines, though expensive, are readily available.

For better or worse, the hottest thing going in the homebuilt world of today is the 100% complete kit concept. With all the stuff available for it, the T-18 comes pretty close. It's what people want today . . . and it's what they are willing to pay for.

The T-18 experience is typical of what we are seeing **throughout** the homebuilt "industry". Almost everyone who has an **efficient** homebuilt design in 100% kit form (or close to it) has about as much business as he or she can handle. If it has folding wings — like Lu Sunderland's version of the T-18 — that's just one more plus in the market place.

Apparently, we are in the early stages of a new phenomenon in general aviation. In the past, the special purpose homebuilts — aerobatic jobs like the Pitts, Skybolts, etc. — were the most popular and were built in greatest numbers. And perhaps most significant, they were always OUTSIDE the main stream of general aviation. They were essentially expensive toys — very often owned **in addition** to a pilot's "serious" airplane (Bonanzas, etc.). With the coming of $2.00 per gallon aviation fuel, however, the world has turned upside down. The hot items now are the very fast, fuel efficient homebuilts — VariEzes and Long-EZs, Q2s, Glasairs, Polliwagens, Dragonflys . . . plus the old fuel efficient jobs, T-18s, Mustang IIs, Sonerais, KRs, etc., that have gotten a new lease on life. The **key point** here is that these planes are not being built **in addition** to ownership of spam cans. Now, they are being built **to take the place** of them. Every day we hear of someone who has sold his "fuel guzzling" factory job and is trying to decide which one of the 4 or 5 gallon per hour homebuilt speedsters to build.

What's happening, of course, is an aviation version of the automotive debaucle of the past two or three years. Just like Detroit, our lightplane industry has been sitting there fat, dumb and happy with their 1940s (or worse) technology designs, oblivious to any need for modernization. Then suddenly, gasoline quadruples in price and, great balls of fire!!, it costs thirty dollars **in fuel alone** to cruise a Bonanza for an hour! Car owners quickly dumped their 12 mpg Chevvies for 30 mpg Toyotas . . . and it looks like a great number of pilots are doing the same sort of thing — trading their 12 gph Skylanes for 4 gph Q2s . . . or whatever.

The homebuilts, it seems, have unwittingly become the "Japanese" of the aviation world.

THE P. A. T. AIRPLANE

"P.A.T." stands for Piper Advanced Technology . . . and the P.A.T. airplane is the one we teased you about in the last issue of **Sportsman Pilot** in connection with George Mead. "Piper" was for Howard "Pug" Piper of THE Piper family. He and Lee Griswold of the Pittsburgh area formed a company last year to develop a family of advanced lightplanes, utilizing composite structure and the canard configuration. George Mead was hired at Oshkosh '80 to design and build a prototype. With test pilot Peter Lert at the stick, the P.A.T. airplane first flew on July 1 — but, sadly, Pug Piper wasn't there to see it. He died of cancer the

previous week. The plan was to fly the plane to Oshkosh '81 — but as this is being written prior to that event, we won't know if it makes it until after press time. Powered by a 160 hp Lycoming, the 4-place, all composite P.A.T. is intended to blow the doors off Skyhawks and Warriors.

George Mead flew his taildragger version of his Adventure in mid-June. It required some offset in the thrust line but, otherwise, is . . . well, a taildragger. Builders who choose that configuration will have to be current in the type.

Vol. 1, No. 1 is **sold out!**

EXPERIMENTAL DIESEL

NASA has just coughed up $147,657 to Teledyne Industries, Inc. of Muskegon, MI for "additional testing for a two-stroke cycle diesel single-cylinder aircraft test engine." Who knows, we may be flying oil burners one of these days.

CAREFREE FLYING MUSEUM

The Phoenix area is getting more and more interesting for sport aviation buffs. Still another antique airplane museum has been created there. We reported on Doug Champlin's Fighter Museum last time . . . now it's the Carefree Flying Museum. Woodson K. Woods has bought the Carefree Airport and is in the process of building a museum as a part of the facilities there. All the display aircraft will be flyable and will include a Fokker D-VII, Jenny, Travel Air D-4000, several Waco models, an American Eagle, Swallow TP, Fleet 7, Bird, Great Lakes, Ryan STA, Jungmeister, Stinson SR-9F, PT-22, Piper L-4, Stearman and two Spitfires, a MKIX and MKXVI.

October 15, 1981 is the scheduled opening date. The museum will be open daily (except Monday and Tuesday) year round and special weekend flying demonstrations and rides will be staged from October 15 to June 1.

LAIRD LC-B-200

Forrest Lovley, who produced the Grand Champion Kari Keen Coupe of a few years ago, is restoring a 1928 Laird LC-B-200, NC6906, Serial No. 165. This is the "Honeymoon Special", the airplane Matty Laird whisked his bride away in way back when. It is owned today by Ken Love of Crete, IL.

ULTRALIGHT PLANK

Al Backstrom is building a new Powered Plank — called the Buzzard I. It will be powered by one of Bill Adaska's Rotec Rally 2B engines. Much lighter than his earlier Planks, this one will be a test bed for even lighter ones to come. Buzzard I will weigh about 300 pounds empty and will have a span of 33 feet. L/D max is 24 to 1. Minimum sink rate — 3 fps. Really clean, it will feature drag rudders at the tips — like a split flap. The only vertical surface will be at the rear of the fuselage.

IN TRANSITION

The familiar old American Eagle logo Pratt & Whitney has used since 1925 is no more. A new, modernistic bird will now perch on the sides of those big turbos that power jet air liners. A few old P&W hands resisted the change, but the young turks won out.

RACERS GALORE!

The full scale Wedell Williams racer built by Jim Clevenger of Marion, NC will probably have been flown by the time you are reading this. Engineered by Budd Davisson, it is one of several under construction. Jim, Budd and another pilot will each be flying one within a couple of years.

Budd is also building a Howard Pete. Major structural members are complete. He has been running some numbers on CG locations on Pete, the Wedell-Williams and a couple of other 1930s racers and is finding that they all were flown with CGs so far aft that it's difficult to see how they flew at all. Perhaps this explains the frequent snapping out of high G turns that killed so many pilots.

RANDOM TAKE-OFFS

. . . was the name of a sort of "Kaleidoscope" in **The Sportsman Pilot** of the 1930s. We recently received a copy of a page from the May 15, 1942 issue — and featured there was a picture of a dashing young devil, white scarf around his neck and a parachute over his shoulder. Reading the caption, we found it was none other than Bill Morrisey, designer of the Morrisey Nifty — now Varga Kachina. Bill was a CAA test pilot in those days assigned to the Aeronca plant. He flew the Army acceptance tests on L-3Bs. As you may have seen in **Sport Aviation**, Bill has designed a new entry in the homebuilt parade, a single placer that can be converted to a 2 or 4-placer!

THE MYSTERY ENGINE UNVEILED

By now, most of you know about the "mystery" engines in John Monnett's MONI and Sonerai II. They are new-from-the-drawing-board-up aircraft engines designed by an Italian firm named KFM — Komet Flying Motors, a subsidiary of IAME, the world-renowned makers of Komet go-cart racing engines. The MONI engine is a KFM 107, a 2-cylinder, 2-cycle job that cranks out about 22 hp. The Sonerai II engine is the KFM 104, an 1830cc 4-cylinder, 4-cycle, 77 hp unit that has the homebuilt world on its ear. Weighing just 160 pounds with all the electrical goodies and a tuned exhaust, it is being eyed as a sophisticated alternative to the VW conversions. Other KFM engines will be the 105, a 2-cylinder, 4-cycle, powerplant producing about 40 hp. It weighs 88 pounds with accessories. Then there is the KFM 109, a 6-cylinder, 4-cycle, 125 hp engine. As you might have surmised, the 104, 105 and 109 are "building block" engines, sharing cylinder assemblies and other components. You'll be hearing a lot about these engines in the months ahead.

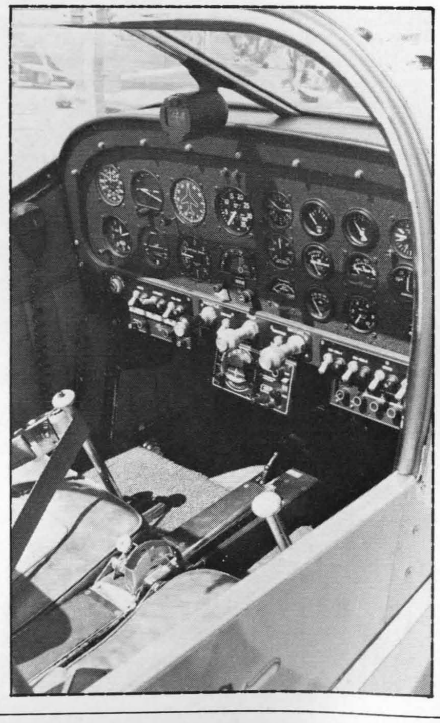
MAILING WOES

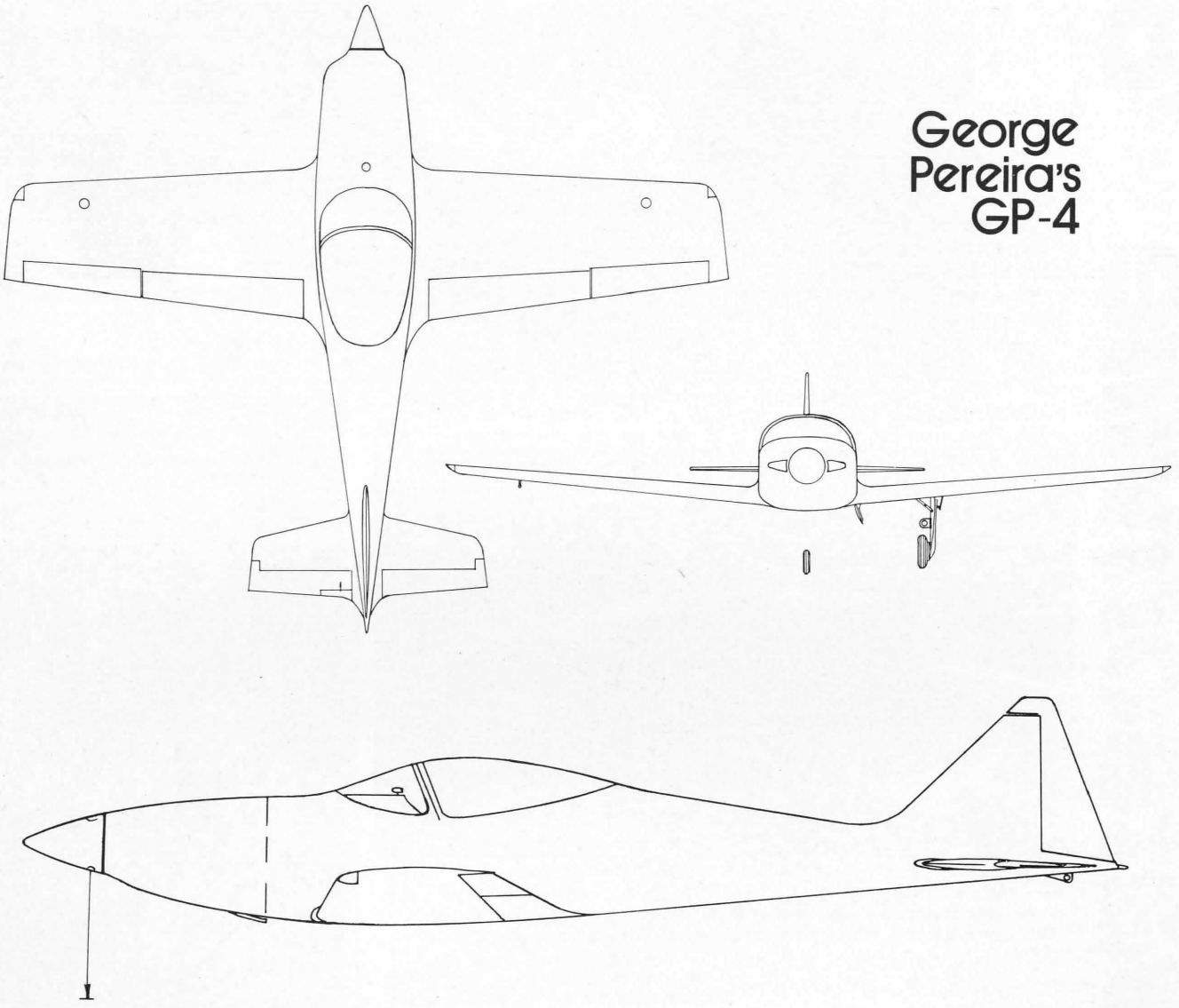
We have been extremely pleased with the favorable response we've received for Volume 1, Number 1 of **SPORTSMAN PILOT**. The format and overall quality have been singled out for praise by many of you. The one sour note has been the length of time it took for the U. S. Post Office to get them to your doors. For some unfathomable reason, the Post Office does not permit one to apply for a Second Class (Magazine) Mailing Permit until **after** the first issue is printed. This means the first one (and possibly succeeding ones — until the permit is approved) must go out Third Class. Third Class is slow mail, as you know. We applied for our Second Class Permit the day our printer placed the first copies of **SPORTSMAN PILOT** in our grubby paws . . . so now we are sitting with fingers crossed, hoping it will be approved before this issue is mailed.

ON THE COVER

LeRoy and Loretta Shumway's beautiful T-18, "Shumway To Fly". Powered by a Lycoming 0-360 and a Hartzell CS prop. It weighs 1027 pounds empty and grosses at 1650. Cruises at 160 knots, lands at 70 mph. The airplane is one of several built in Los Angeles by a group of pilots who fly 'em everywhere. All are exceptionally well done — flush riveting throughout, etc. The Shumway's is extensively soundproofed — using 3-M soundproofing foam tape on about every square inch of the inside of the fuselage from the firewall to the leading edge of the rudder. From San Diego, LeRoy and Loretta were high over the Central Valley of California, just NW of Bakersfield when this picture was taken. They had formated on Ken Brock's Cessna Turbo 210 — headed for Watsonville.

Cockpit of the Shumway T-18.





George Pereira's GP-4

GEORGE PEREIRA'S NEW DESIGN

No, it's not an amphibian! We associate George with his ultra-sleek Osprey, but his latest design is a more conventional configuration — a two-place, side-by-side, low wing, retractable tri-cycle geared, basically all-wood (with foam and glass for compound curves) high performance sport plane. As you would expect from him, it is very streamlined and will have a great deal of attention devoted to drag reduction, both in design and in the fits of things like gear doors, control surface gaps, etc., to try to squeeze out the last mph possible. And it is expected to be fast — **cruise** with a 200 hp Lycoming IO-360 and a specially made Hartzell is projected to be around 214 knots! And with an empty weight of only 1100 pounds, an initial rate of climb of nearly 3,000 fpm is anticipated.

The starting point for the as-yet unnamed design was a cockpit big enough to handle two large sized men (like George), their luggage, a full IFR panel and enough oxygen to sustain them on some **long**, high altitude flights. With 54 gallons of fuel carried in full length leading edge tanks plus a fuselage header tank . . . at the speeds the plane will be capable of . . . legs of up to 1200-1300 miles will be feasible.

The one piece tapered wing has a laminar air foil and a set of big flaps. Span is 24 ft. 4 in. and the area is 104 square feet. Fuselage length is 21.5 ft. Entry to the cockpit is via a sliding hatch, utilizing a T-18 canopy.

The major parts of the aircraft's structure have been built, the main gear is in, etc., but George has no target date for finishing it. And he wisely is not putting any pressure on himself relative to putting it on the homebuilt market. He will complete the airplane, fly it, work out the inevitable little bugs ALL new designs have, THEN make such decisions.

Incidentally, **two** aircraft are being built, the second by a friend who will use a Lycoming 0-320.

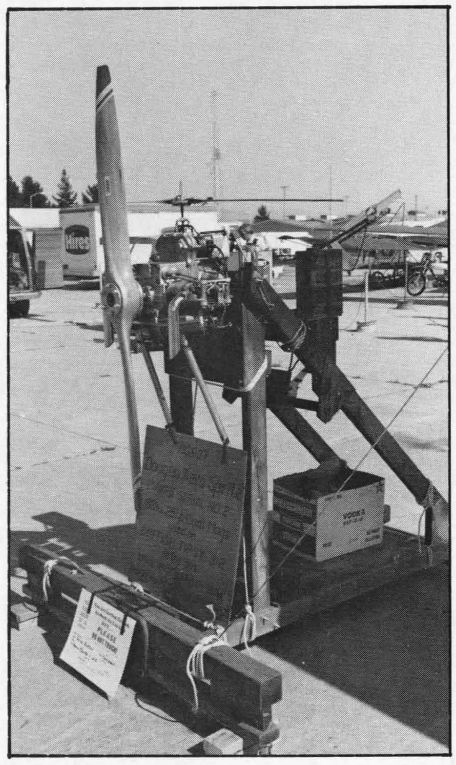
INDOOR ULTRALIGHT

We've heard it all now! Steve Grossruck of Kasperwing fame has flown his ultralight in Seattle's Kingdome — in fact, circling as high as the 3rd level of seats. This was a warm-up for a scheduled race between Grossruck and Gary Wilson in another Kasperwing at half-time during a paper airplane contest (for local charity). At presstime, we had not heard if it actually came off. Local pilots were claiming Steve's flight to be the first indoors in a powered, fixed wing aircraft. Can anyone dispute that?

Watsonville '81

The 1981 Watsonville Grand Champion — Ted and Flora Homan's 1928 Travel Air 3000.

Harvey Mace's M-102 "Scorchy" with a new pressure cowling. Looks and goes better, says Harvey. If you want more info on this tractor version of the BD-5 (including drawings), write: Harvey Mace, 30674 Pudding Creek Rd., Ft. Bragg, CA 95437.



This tiny Douglas Aero Sprite Mk. II engine was run on its display stand — to prove it would, I suppose. Built in 1936, it is Ser. No. 2. Used to power the British Tipsy S-2, it has a displacement of 803cc and produces 25 hp.

Imagine a pleasant valley with a low range of mountains visible in the distance . . . a sweeping bay of the Pacific nearby . . . bright, warm sunshine. Picture an airport there with row on row of airplanes . . . antiques, classics, homebuilts, ultralights, warbirds, rotorcraft . . . antique cars, trucks, woodies . . . beautiful machines that sparkle and shimmer in the sunlight as you stroll past. Try . . . **just try** to walk past concession stands heaped with strawberries as large as eggs . . . incredibly sweet strawberries with their stems left on so you can munch them like popsicles on sticks . . . milk shakes made with real ice cream and more of those huge strawberries . . . steaming trays of french fried artichokes.

French fried artichokes???

Nowhere, friends, **nowhere** in the world but Watsonville, California will you find that combination of geographical, mechanical and gastronomic delights! If you've never attended the annual fly-in/happening there, then consider yourself deprived *in extremis* . . . because they've done it 17 times already.

Billed as an antique airplane fly-in and, in fact, sponsored by the Northern California Chapter of the Antique Airplane Association, Watsonville has evolved into the all-category sport aviation event most large fly-ins have in recent years. Antiques still are parked in center stage, but all the other types are just as accessible on the sprawling airport grounds, so no one need feel slighted. Judging is done in all sportplane categories, so almost everyone has a chance at an award.

Having been held for 17 consecutive years on the same airport, Watsonville is a mature event . . . one with a number of pretty solidly entrenched traditions. The strawberries, artichokes, and apple juice are simply a sampling of local commerce. The local Chamber of Commerce and many area civic groups participate in the fly-in, manning concessions and helping out in a variety of other ways — all to make the event a success and to promote their area and its products.

On Saturday night everyone heads for the local fairgrounds for a spaghetti feed and indoor model airplane contest . . . and come back the following night for the awards dinner. The guest of honor at the

dinner each year is the Grand Marshall of the fly-in. For 1981, General Jimmy Doolittle and his wife shared the applause and admiration of a standing room only crowd.

On Sunday morning, those who can drag themselves out of bed early enough have the option of a short drive to the town of Corralitos to enjoy their annual Lumberjack Breakfast. This is still another all-out local civic event, featuring a hearty pancake breakfast amid towering redwoods, antique cars and the chug-chugging of old fashioned stationary engines and implements.

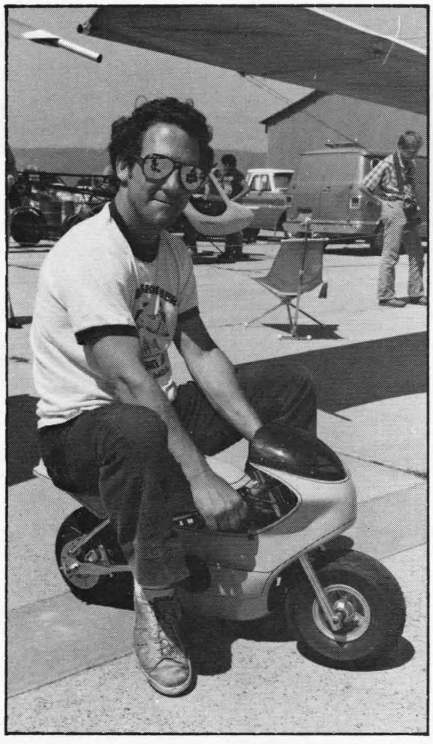
All in all, Watsonville is a long weekend of pure pleasure for lovers of airplanes, cars and mechanical contraptions of various and sundry types.

Located right on Monterey Bay, Watsonville has had some less than ideal weather for their fly-in in years past. It can be cold there almost any time of the year — all it takes is a stiff breeze coming in off the ocean. A cold current of water wells up from the deep just off the coast and can turn the local weather mean in minutes. Fortunately, conditions were ideal this year — warm, sunny and little in the way of wind all weekend. One couldn't have ordered a better weather scenario for a fly-in. Each morning the ultralights were out buzzing around the pattern, and across the active runway hot air balloons were billowing up and launching into just enough of a breeze to slowly waft them away to distant adventure. One launched with a girl standing on **top** of the envelope . . . to the limits of its tether line. Thrills are where you find them, I suppose!

Just as we earlier found a continent away in Florida at Sun 'N Fun, predictions of a great turndown in recreational activity this year were definitely **not** supported by fact at Watsonville. A very large crowd turned out each day of the fly-in and surely made the event a financial success. I'm glad because I want to go back again.

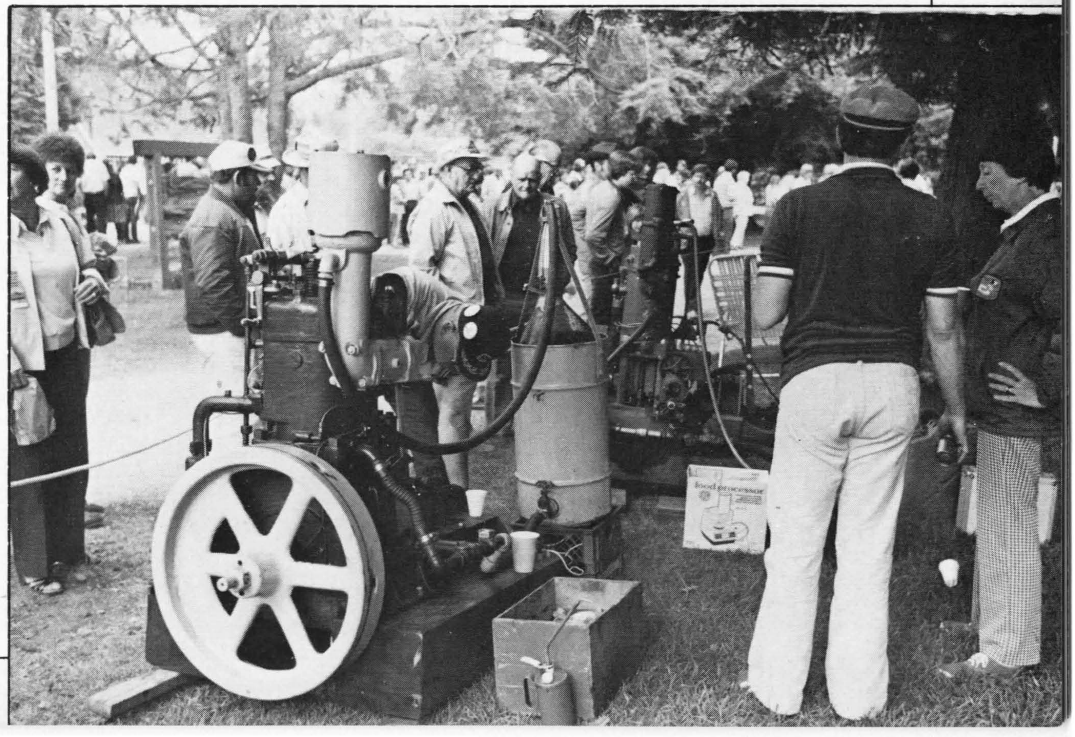
The show airplanes at Watsonville are parked in what amounts to long, roped-off fingers, each machine right behind the ropes and facing the spectators. In this way everyone gets a close-up view of every aircraft, which seems to satisfy their curiosity because I saw few instances of rope jumping (pun intended). It appears to be an excel-

1941 Stearman now owned by Chuck Bail of Burbank, CA. The airplane was formerly the pride and joy of the late Steve McQueen.

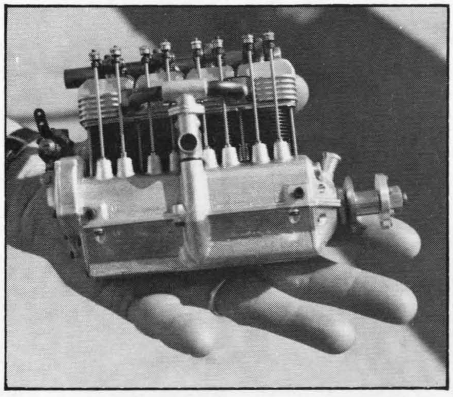


One of the minor sensations of Watsonville '81 was this tiny little . . . er . . . well, it LOOKS like a scaled down racing motorcycle. Naturally, it's made in Japan. The rider is Greg Coleman, who tooled all over the fly-in site with the little jewel — would make a great throw-it-in-the-baggage compartment ground transportation piece . . . if your legs are short enough to ride it! Greg, incidentally owns the rights to the Superfloater footlaunched sailplane and has the plans for sale at $50.00. He will have a powered version available soon. Write: Superfloater Productions, c/o Gemini International, Inc., 75 Bank St., No. 13, Sparks, NV 89431.

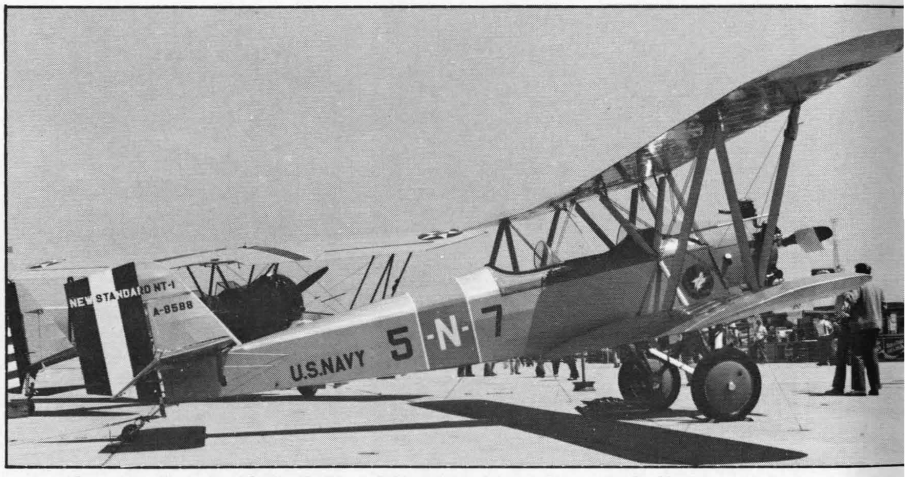
Stationary engines were attractions at the annual Lumberjack Breakfast at nearby Corralitos.



Jim Nisson's fabulous ol' Jenny. His aerobatic show (yes!) with the 63 years old wonder was the hit of the show, as far as your editor was concerned.



Don't know anything about this tiny little Cirrus engine other than the fact that it was shown to us while we were talking to Ron Souch about his Gipsy Moth. The little engine was said to run.



George Dray's (Schellville, CA) 1929 New Standard. Powered by a 125 Kinner. A super restoration.

lent way to handle a very large crowd with a minimum of personnel. The "fingers", incidentally, are wide enough that aircraft can taxi in and out down the middle of them. This keeps whirling propellers well away from the spectators.

Watsonville is a "flying fly-in". It's the largest event I'm aware of that still has short field take-off and landing contests. Fortunately, not a large number of pilots choose to participate — but those who do appear to have a lot of fun. After the contests, a parade of antiques is launched — this year led by Jim Nisson in his 1918 Curtiss Jenny and followed by Tony LeVier in his 1928 Monocoupe, George Dray's 1929 New Standard, Ron Souch's 1930 DeHavilland Gipsy Moth . . . and progressively newer aircraft, ending up with Mel Heflinger's Harlow and Orval Fairbairn's solid red Johnson Rocket. One day these two appeared to be in just a wee bit of a race as they made their last pass down the runway before turning out for landing. I'm sure both of them had their throttles putting a dimple in their panels as they roared by, and Mel's bigger, blunter Harlow was giving the pointy little Rocket all it could handle. On landing it was no contest — the generously winged Harlow made the first turn-off with ease, as the Rocket, well, rocketed on by . . . but not by all that much. Orval did a nice job.

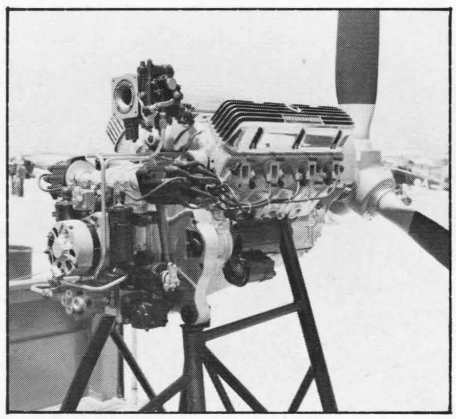
The aerobatic portion of the afternoon show followed immediately after the parade of antiques . . . in fact was started by one of its participants. After a few passes by the crowd, all the antiques landed . . . save for Jim Nisson. He began grinding away for altitude as the others squeeked down on the runway or the grass median. After he appeared to have a couple of thousand feet, maybe less, Jim stuck the nose of his Jenny down and, by golly, **looped it**! Not only did he loop it, but on the pull out he brought the nose on up, burned off his (very little) speed, kicked in full rudder and, yep, **spun it**!! It was the darndest thing I've ever seen . . . and heard. Those big ol' long wings and forty miles of struts and wires wallowed round an' round in about as lazy a fashion as anything can that's pointed straight at the ground! Just as great was the sound — you could have closed your eyes and counted the turns . . . whoosh . . . whoosh . . . whoosh as it strained air through all that wood, wire and canvas. Gad, it was magnificent! The pull out was followed by another comma-shaped loop, after which

Jim brought her around for a neat landing in the grass . . . the tail skid spraying a rooster tail of grass and dirt behind as it rumbled to a stop. Jim's crew rushed in with a wheeled dolly and shortly were towing the ol' bird tail first back to its parking spot — amid the cheers of an appreciative crowd.

I certainly don't mean to minimize the talent and showmanship of the aerobatic pilots who followed Jim each day because they did some exceptional flying, but I must confess that seeing the Jenny loop and spin was the high point of the fly-in for me.

The air show **was** interesting for its variety as well as talent. A brace of Christen Eagles — didn't get the names of the pilots — a stock Ryan PT-22 flown by Alan Buchner, Eddie Andreins in both a Stearman and a Great Lakes, Dick VanGrunsven in his new RV-4, Bridgette De St. Phalle in a Pitts S1S, Amelia Reid in a Cessna Aerobat and Wes Ament in a Pitts kept the crowd entertained throughout the afternoon. Next to the Jenny, the most unusual act . . . and the most graceful of all . . . was Brett Willatt's performance in a Schweizer Sprite. With colored smoke trailing from the wing tips, he looped and rolled the long winged sailplane down to a final high speed pass across the airport at gopher hole height — then pulled up into a Dick Rutan-like minimum altitude 360^0 approach to a landing. It was impressive — and a little startling — to see the clean little ship pick up speed when the nose was pointed down. It accelerated! Best of all, though, were the rolls . . . the most graphic examples of adverse yaw I've ever seen.

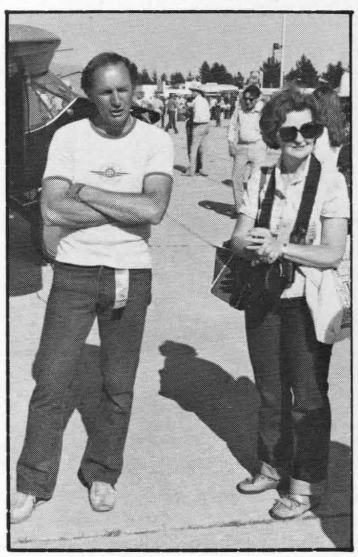
The Grand Champion of the fly-in (they only award one, regardless of category) was a 1928 Travel Air 3000 — a "Hisso Travel Air" to the initiated. Restored by Ted and Flora Homan of Santa Paula, CA, it was, of course, a show piece of the first caliber. Built in far fewer numbers than its contemporaries, the Travel Air 2000 (OX-5) and 4000 (Wright J-5), the 3000 is a rarity today. (It's the only one I've ever seen.) The 3000's claim to fame rests largely with the exploits of the late Louise Thaden. On December 7 of 1928 she set a world's altitude record for women by climbing her Hisso Travel Air to 20,200 feet over Oakland, California . . . sucking on oxygen from a homemade rig liberated from a welding shop! Three months later, on March 16, 1929, she used the same airplane to break the solo endurance record with a flight lasting 22 hours, 3 minutes and 28



Gotta be something different under that cowl, eh? It's a Skybolt powered by an Aero Engine, an aircraft engine developed from a GM V-8 by George Morse of Santa Cruz, CA. The engine develops 225 hp and appears to be very well done — lots of special castings, etc. A second Aero Engine (inset) was displayed on a pick-up.

N42CW, one of the nicest KR-2s ever turned out by a builder. The work of Wesley Evans of Ventura, CA, it is powered by a Revmaster engine and a Warnke "Almost Constant Speed" prop, weighs 762 pounds empty and cruises at 160. Lands at 60. A second one is being built for his wife.

Ron Souch's super authentic 1930 DeHavilland Gipsy Moth.



Gipsy Moth restorer, Ron Souch, and Sportsman Pilot's Golda Cox.

A few years ago, a major U. S. lightplane manufacturer told EAA's Paul Poberezny that folding wings "just weren't technically feasible". That's funny, because almost all European lightplanes of the 20s and 30s, including the Gipsy Moth, had them.

seconds.

The Homan Travel Air is powered by a Hispano Suiza Model E that cranks out 180 horsepower. This V-8 water cooled engine was from the family of engines (there were many variants, horsepowers, etc.) used in World War I in SPADs and S.E.5s, just to name a couple. The 3000 is said to have been a favorite "fake Fokker" with movie directors of the 20s and 30s due to its resemblance to a Fokker D-VII.

Ted Homan had been working on the 3000 for a number of years, but, sadly, he has developed a physical condition that no longer permits him to attend fly-ins. However, his wife, Flora, and some friends were determined to get the airplane done and to Watsonville for him. It must have meant a great deal to each of them when Flora stepped forward on Sunday night to accept the trophy.

The second place airplane at Watsonville (the Mayor's Award) was Ron and Joan Souch's 1930 DeHavilland Gipsy Moth. As you can see in the pictures, it still has its British registration G-ABEV. That's because Ron and Joan have only recently moved to the United States from England. The airplane was restored there and, with its wings folded, was shipped here along with their other possessions. The Gipsy Moth is quite interesting in that it is restored to a factory new state, rather than as an all-out show piece with polyurethane paint, chrome plating, etc. Manufacturers in other countries took a more work-a-day attitude toward their products than did American companies of the 1920s and 1930s . . . perhaps because most of their customers were business firms and flying clubs, whereas U. S. companies sold a lot of airplanes to private individuals. These people wanted fancier airplanes — hand rubbed finishes, nickel plated sticks, etc. Consequently, Ron's plane is very nice, very clean, very authentic — but it does not shine like a lot of our showplanes do. It's nice to see one done that way and the judges, who know about such things, weren't put off by it in the least.

Ron, incidentally, has a Cessna Airmaster for restoration and has become acquainted with Gar Williams, who was featured in Volume 1, Number 1 of **Sportsman Pilot**.

The Gipsy Moth is a very significant airplane — much more so than most Americans realize. In the late 1920s and early 1930s British men and women flew them incred-

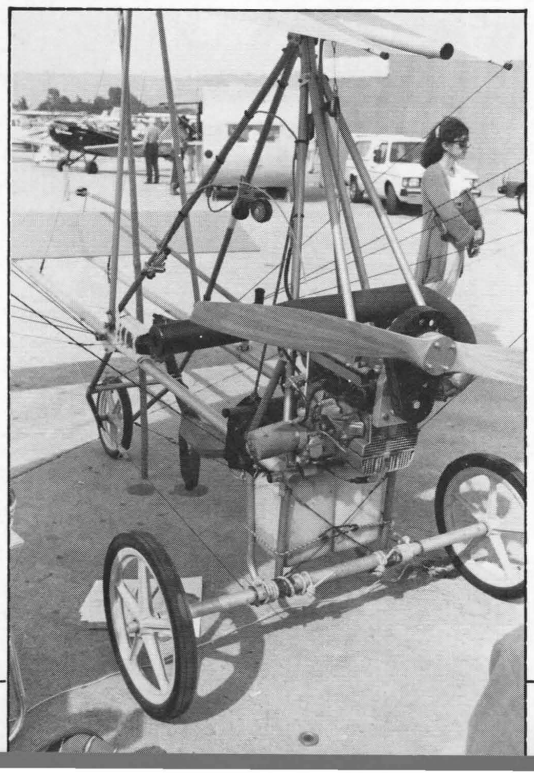
ible distances — to South Africa and through the Middle East, across India, Southeast Asia and across the shark infested Timor Sea to Australia! For a time in the early 1930s, there was a literal parade of Gipsy Moths dashing to and from Australia — each pilot trying to make the flight faster than the last one. It was a terribly slow airplane for such distances, but its Gipsy engine was probably the most reliable **small** aircraft powerplant in the world at that time, and so became the chosen instrument of pilots like Jim and Amy Mollison, Jean Batten, Charles Scott and a number of other persistent souls.

Ron was kind enough to give me a "guided tour" of his airplane and while peering into the rear cockpit with its big ship-type horizontal compass, I couldn't help wondering if I had the courage and the stamina to duplicate the feats of those famous names of yesteryear. Well, maybe if there were Holiday Inns at every stop . . . and if I could get a flying boat escort across the Timor . . . and . . .!!

Other top awards at Watsonville '81 included the "Best Homebuilt in Show" which went to Ted Andersen of Eureka, CA for his stunning black Christen Eagle — which you will read about elsewhere in this issue; "Best Fighter" to Ellsworth Gelchell for his Hawker Mk. II Sea Fury; and "Best Neoclassic" (same as "Classic" in the EAA scheme of things) to LeRoy Moser of Santa Clara, CA for his Cessna 170A. There were no awards this year for ultralights, although they were much in evidence.

Monday was Memorial Day, so most of the aircraft were still there when we prepared to leave that morning. The weather was still good . . . and I had the feeling that most had had such a good time that they were dragging their feet in their efforts to head home. Shortly, we were blasting out in Ken Brock's Turbo 210, headed south for Los Angeles . . . and the usual instrument approach into Long Beach airport. (Ken can almost shoot it from memory.)

As Watsonville and the Pajaro Valley faded from view behind us, I had nothing but pleasant memories of the past 3 days. We hope to be back . . . as long as the strawberry crop is a good one next year, Golda says!



NC21041 is a beautiful restoration of a 1938 Aeronca KCA — the first of the Chief line. This one is the 19th of 59 built. Richard Edmiston of 20545 Ave. 380, Woodlake, CA 93286 owns and did the restoration on the airplane. He believes it to be the most original KCA flying today. It has the old overhead exhaust Continental A-50-1 single ignition engine of . . . maybe . . . 50 horsepower, old style Plexiglas inspection covers, original style hardware (no stop nuts), bungee tailwheel, etc. It was a basket case when Richard bought it, requiring all new wings, except for hardware, an engine overhaul, new fabric, interior, etc. It is covered with Stits fabric but is finished in authentic yellow and blue paint. The Cub in the background belongs to Richard's friend, Brian Blain of 3008 S. Burke, Visalia, CA 93277, who is restoring a Ross Sportplane.

If you'll look closely at the "cockpit" of Jack McCornack's Pterodactyl you will see an oxygen bottle — a tip off to the fact that he has been doing some high altitude flying of late. On the first day of Watsonville (Friday), he climbed to 17,500 feet, flew straight and level for 5 miles then began his descent. He had coordinated the flight with the Monterey tower. The barograph trace for the flight is taped to the oxygen bottle.

These California Fly-Ins are laid back, folks! Ted Andersen's "Best Homebuilt" Christen Eagle is being used here as a resting spot for watching the air show at Watsonville '81. That's Irv Perch's Ford Tri Motor in the background.

EAGLE ELEGANCE

The "Best Homebuilt in Show" at Watsonville '81 was an absolutely stupendous Christen Eagle II. Built by Ted Andersen of Eureka, California, it was so new the paint and the ink on the Special Airworthiness Certificate were still wet.

The Christen Eagle kits are so complete and so deluxe that it seems sort of silly to ask a builder about the construction of the airplane . . . when it's plain to see he followed the Christen manuals explicitly. Consequently, I took another tack . . . I asked about any **deviations**, any **additions** over and above what Christen supplies. Lo and behold, I found there were a few.

Eureka is on the northern coast of California, about 80 air miles south of the Oregon border. It gets foggy and rainy there on occasion, according to Ted, so he added some gyro instruments . . . just in case. Also, because Eureka is a long way from fly-ins, a 6 gallon aux tank was built in. It doubles as a smoke oil tank when desired, the conversion taking about 5 minutes with a wrench and a little body english. Initially, Ted considered installing a simple two-position valve for switching functions, but after considering the consequences of perhaps forgetting and injecting raw gasoline into the exhaust, decided that wasn't a move conducive with such delights as hanging around long enough to collect his Social Security.

The Eagle is also fitted with some of the little attitude reference devices for aerobatics, but that's about it for additions and/or modifications . . . other than the paint job.

ALL Christen Eagles have spectacular paint schemes — featuring the stunning highly stylized polychromatic eagle head and feathers created by artist Ivan Clede. Ted Andersen, however, is the first builder I'm aware of who has turned his Eagle into a night fighter — it's an all-black airplane with the brightly colored eagle literally jumping out of it. The effect is dramatic, to say the least.

The price for the goodies and the super finish (Stits and Imron) is, inevitably, a higher than normal empty weight — about 50 pounds more. As a result, the airplane is just a smidgen under on some of the Christen performance figures, but, nevertheless, Ted is very happy with the airplane. It is still a super performer and he wouldn't trade his add-ons for the few extra feet in rate of climb . . . or whatever.

Although we had ten kit built Eagles at Oshkosh last year, Ted was the first owner/builder I've had an occasion to interview, so I decided to give him the ol' third degree on the vaunted Christen kits, factory support, etc., to see if all the beautiful paint jobs, computer-printed manuals and sophisticated marketing techniques had any substance behind them.

Ted was forthright in admitting that he got off on something of a wrong foot with Christen Industries when he initially placed his order. He assumed that when he plunked down the BIG check for the whole shooting match, a very large crate would soon be unloaded at his door with one 100% complete Eagle erector set inside, ready for him to start fitting Tab A into Slot B. Like a lot of other early Eagle kit purchasers, Ted was so entranced with the airplane that he simply wasn't hearing what Frank Christensen was saying about his programmed production schedule for the 28 materials packages (kits) that are needed to complete the airplane. What Frank attempted to explain was that after the start-up of the program, he would produce, each month, a certain number of **one** of the packages. The next month the same number of another package would be made, etc., etc. The packages would be shipped out by order numbers to customers . . . and if you happened to be holding a number in excess of the quantity of packages produced that month, you would have to wait until its month came up again — perhaps even a year later.

Obviously, such a system was just too **boring** a rigamarole to explain to a fellow who was outside the office panting and drooling over the demonstrator. Frank tried . . . God knows he tried . . . but still there were a lot of unhappy cus-

tomers in the early days of the Eagle program.

After a short period of disillusionment, Ted made himself aware of and accepted the factory production system and simply adjusted his building to it. Once received, he certainly was pleased with the kit packages. They were, he recalls, all they were advertised to be: 100% complete, of exceptional quality and easy to build following the ultra-detailed building instructions.

Throughout the 2½ years of spare time it took to build his Eagle, Ted was bombarded with corrections, updates, etc., spit out by Christen Industries' computers.

"I really don't know why they bothered with most of them," Ted says with a chuckle. "Most were just clerical errors of some sort. Very few had anything to do with the structure or design of the airframe. It did, however, show how concerned Frank was with doing everything right. He's really a perfectionist!"

"Overall, I found the kits and the Christen support to be exceptional."

Like so many Californians, Ted is an immigrant. He is a native of Colorado, but after his discharge from the Navy 12 years ago, he settled in Eureka. He owns several retail businesses and flies basically for recreation.

He learned to fly about 8 years ago, but really wasn't aware of organized sport aviation at the time. One weekend he flew his Cessna 170 to San Francisco on business, heard a "fly-in" was taking place in nearby Watsonville and decided to go have a look.

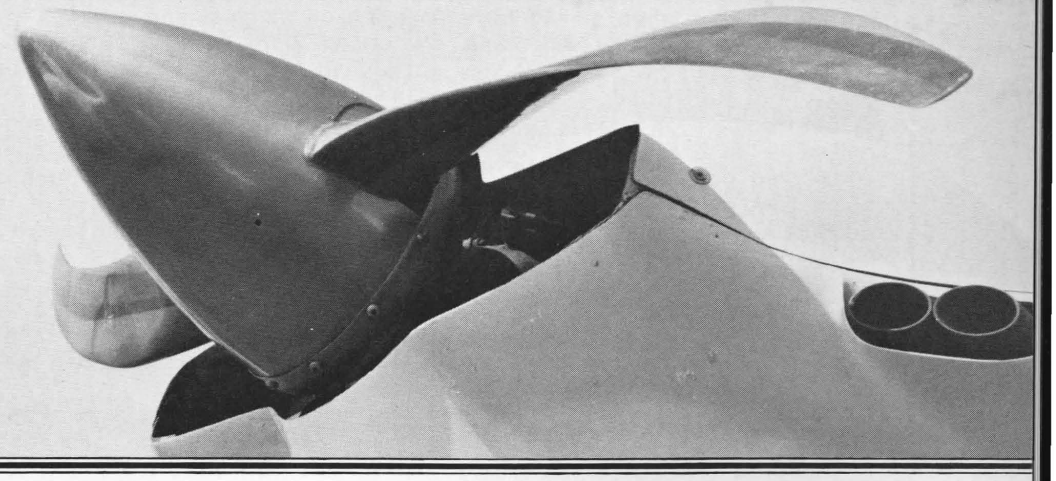
"It opened up a whole new world for me . . . made aviation worthwhile . . . gave me a reason to fly other than just to get somewhere."

Ted went headlong into the wonderful world of antique airplanes. He bought a nice Stearman and spent many enjoyable hours making it even nicer . . . and, of course, flying it. He sold the big two-holer when he bought the Eagle kits . . . and has lived to regret it.

"The Stearman is my all-time favorite airplane and I really regret selling it. I really like the Eagle and I want to continue aerobatics for a long time to come, but antiques are another thing that has my heart."

His next project, he says, will probably be an antique restoration. Hopefully, a Stearman.

Meanwhile, he has an awfully nice toy in the Eagle to keep him occupied.



Can you believe this?? Looks like a prop that got left out in the rain and warped!

Actually, it's a very carefully made scimitar by Ken Swain of 113 Lamb St., Travis AFB, CA 94535.

KEN SWAIN'S SCIMITAR

"There's no free lunch" is something all of us have been hearing since we were old enough to understand the analogy. Nevertheless, we've got some homebuilders out there who are trying to make a lie out of that old chestnut . . . a handful of prop builders who want most of the advantages of a constant speed propeller **without** the usual weight, maintenance and expense. Pretty tall order, eh?

One of our wishful thinkers is Ken Swain, a mechanical engineer by education, a C-141 pilot for Uncle Sam's Air Force by profession and a VariEze and wild, wild scimitar propeller builder by avocation. If you were at Oshkosh the last couple of years or remember the picture in the October 1980 issue of **Sport Aviation**, you know he has carved a prop for his 0-235 Lyc that would drive a Turkish sword maker to drink . . . or away from it! So swoopy and so thin as to appear all but impossible to carve from wood, it seemed too fragile to stand up to the thumping power pulses of a Lycoming four banger. Yet, most of us saw it for the first time just after it had (1) flown in from California and (2) had just completed a grueling, balls-to-the-wall 500 miles in the Lowers/Baker/Falck speed/efficiency race. Fragile it wasn't.

I finally managed to catch up with Ken at the 1981 Watsonville, CA Fly-In and was able to get the story on his propeller. Right off the top, he acknowledged the work of generations past and present that served both as inspiration and valuable sources of information in developing his own prop. In particular, he cited the S-shaped props of the World War I era and, of course, the racing props Steve Wittman has been making, flying . . . and breaking . . . for longer than most of us have been living and breathing.

What Steve, Bernie Warnke, Ken and many others are after with their scimitar props is the take-off and climb performance of a "climb" prop AND the straight and level speed of

a "cruise" prop . . . obtained by means of blades carved in such a way that they will, in effect, change pitch under different rpm and load conditions. To do this the blade must be thin enough to flex, yet strong enough not to break and it must have the geometry to flex just the desired amount and in the desired direction. As you can easily imagine, this is possible only through a skillful combination of science and the gentle art of prop making.

Such "magic" propellers have been built and have been proven to work. Steve Wittman was exceeding standard textbook propeller performance chart figures in the 1930s . . . but as he warned in a forum at Oshkosh last year, such propellers come apart with alarming regularity. It's simply a matter of the extreme amount of flexing the blades experience. If they are metal they ultimately fatigue; if they are wood, the limits of elasticity are reached and the fibers break. As Ken puts it, it's not a matter of **if**, it's a matter of **when** an old fashioned scimitar propeller will break.

When he built his VariEze a few years ago, Ken fitted it with one of Ted Hendrickson's 58" x 72" propellers — an excellent prop in his considered opinion. With it he got about 2600 rpm on static runup, a good rate of climb and a cruise of between 208-210 mph . . . at 3100 to 3200 rpm. He was pleased with the numbers but didn't like having to thrash his engine so far above its redline (2600 rpm) to get them. This was the starting point for his scimitar — leading to a design goal of equalling the Hendrickson prop in take-off and climb and exceeding the cruise performance . . . at a lot less rpm.

Knowing what he did about the history of scimitar props, Ken never would have attempted making one had it not been for the experience he had gained with composite construction methods and materials in the course of building his VariEze. He knew that fiberglass could be laid up in layers and with the woof and warp oriented in such a way as to "tailor" the way the finished product would flex at almost any given point along its length. (VariEze spars are made that way — "tailored" to withstand the necessary "flying" loads, torsional loads, etc.). Consequently, Ken resolved to build a **composite** propeller — with a wood core covered with layers of fiberglass and epoxy resin. A sort of something old (the wood core), something new (glass/epoxy) blending of technology.

Moving back to the World War I part of the job — the wood working — Ken quickly learned that in California, at least, he would be working with a considerable handicap. He found that propeller quality hardwood was awfully difficult to come by . . . and very expensive when he did. He went through quite a bit of stuff that would have made beautiful coffee tables before he had enough birch, maple and cherry to build a decent propeller. (The cherry was purely cosmetic — a dash of color amidst the pale layers of birch and maple.)

After gluing up his blank and laying out the wild shape (arrived at by dusting off his college trig and accomplished by drilling holes in a wooden yardstick to permit its use as an outsized compass), he attacked it with a chisel and mallet to remove the major portion of the wastage. A spoke shave was utilized to get the shape down to the point where sandpaper could be used to finish up. That done, the laying on of glass and epoxy commenced. Near the end of the process, an inset along both the leading and trailing edges was carved. These were built up with flox, sanded to shape and then **all** was covered with glass. This formed a closed cell — essential if flutter is to be avoided. A thorough sanding just to the point where the underlying layers of glass were just beginning to emerge was followed by another layer of epoxy, a light sanding and, finally, a workout with polishing compound.

In all, 3 58" x 73" scimitar props have been built . . . 3 "baseline" props, as Ken calls them, for, indeed, each was a learning experience and provided a new level of knowledge from which to launch forth when building the next one. The first two underwent about 10 different modifications each as Ken sought the performance he desired. A number of different air foils were tried before a satisfactory one was discovered and there were a number of compression and torsion failures in the glass/epoxy covering before the proper orientation of the glass weave and correct number of layers were determined. Finally, however, prop number 2 was "working" to Ken's satisfaction. What happens is as follows:

The prop will turn about 2800 static rpm.

On climb-out at best rate of climb (90 knots at medium weight), the prop turns 2800 rpm.

"Then when you level out, it's just like a slingshot — you can feel the acceleration in your backside. At 1,000 feet pressure altitude and a density altitude of 2500 feet I was seeing 220 miles per hour true at 2950 rpm. This is with a stroboscopically checked tach and an airspeed indicator I know to be quite accurate."

"Up high, I can maintain 200 mph true all the way through 10,000 feet. There, I'm still turning about 2,825 rpm."

Ken put 150 hours on this prop . . . and then one day had the misfortune of having a fuel cap go through it on take-off roll. One blade shed about 4 inches of wood, glass and epoxy — and the resulting vibration thoroughly proof-tested the integrity of the VariEze airframe, but, fortunately, Ken was able to shut down and roll to a stop. An inspection revealed no damage to the Eze . . . other than the prop, of course.

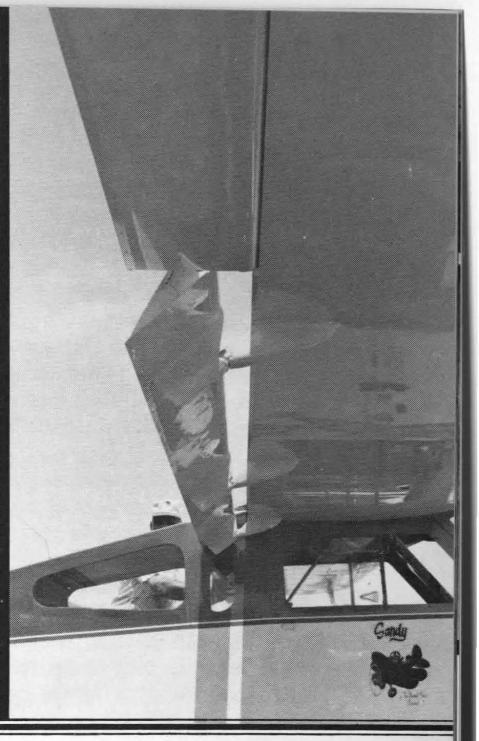
Prop number 3 was simply a reproduction of the successful #2 . . . but things didn't turn out 100%. Every measurement at every station was the same as on the previous prop, but when it was test flown, it was about 3 mph slower — 217 mph versus 220 true. Obviously, there's some nuance of shape, curve, thickness or whatnot that causes the difference, but Ken can't measure what it is. Some minor tweaking hasn't helped, either.

As of Watsonville in late May, he had 150 hours on #3 and it was going strong. The rate of climb is just a shade less than with the Hendrickson fixed propeller and the cruise is about 7 mph faster at 200 fewer revolutions per minute. Ken is extremely pleased with getting this close to his design goal and feels the effort was well spent. He is not, however, preparing to go into the prop business — or even into the sale of "how to" instructions for reproducing his propeller. It is an experiment that is still in progress. A lot of questions remain — such as the service life of the flexing blades, the resistance to stone pitting (very good, so far), the long term effect of the sun's rays on the epoxy, rain erosion of the leading edges, etc., etc.

At the moment, Ken simply wants to blow the doors off the rest of you guys in the CAFE 250, LBF 500 and in the fly-by patterns. He'll talk to you about the prop (as he did for this article), but he cautions (again) that unless designed and made properly, scimitars break.

Remember . . . not **if** but **when**!

Glen Dickinson's highly modified BD-4.



S.T.O.L. BD-4

Some guys will go to any lengths to get what they want . . . and Glen Dickinson has gone further than most. He wanted a short field airplane with good cross country performance, so he chose . . . (gasp! choke!) . . . a BD-4!!

Now, BD-4s are pretty fast little airplanes, but for crying out loud, EVERYONE knows that with the power off, they take on the aerodynamic characteristics of a flat-iron! Well . . . maybe not THAT bad, but . . . geez! a STOL BD-4?? Most guys who want to get in and out of high/hot/short places and also get home in a hurry think in terms of socking a 180 Lyc in a Piper Pacer or something like that.

Well, "something like that" wasn't good enough for Glen. You get a short field terror with a terrific rate of climb with a big engined Pacer, Super Cruiser or whatnot, but the cruise speed really isn't all that great. Glen wanted 180+ cruise on top of his short field capability . . . which was why he decided to reverse the usual modification route. He would **start** with a fast airplane and do **his** cutting and fitting to slow it down in the lower end of its performance envelope.

Which brings us back to the BD-4.

Glen rummaged through NACA/NASA reports, picked the brains of other BD-4 modifiers and read everything he could lay hands on concerning high lift devices . . . then began redesigning his 4. Ultimately, the modifications would include:

- A metal wing, with two feet of additional span for each panel. This is a modification developed by Jim Murphy of 17392 Chapparal Lane, Huntington Beach, CA 92649 (who was sitting in the shade of Glen's wing when I walked up).
- The aileron/flap actuation system utilizes cables instead of the standard torque tubes.
- A kind of Fowler flap was developed, using an old NASA report as a guide. Essentially, it involves a hinge point that causes the leading edge of the flap to protrude into the airflow above the wing when it is lowered. This is supposed to bend the airstream down over the top surface of the flap, making it more effective.
- The flap handle was mounted on the cabin floor . . . "because I don't like it on the ceiling," says Glen.
- The fuselage was lengthened a foot to help balance the weight of the 200 hp Lycoming installed up front.
- A curved windshield was developed to do away with the rattle and bang of a standard flat installation when the engine is fired up.
- The main gear legs are 7075 T-7, solidly mounted . . . another Jim Murphy development. The tailwheel mounting is also different from the standard Bede taildragger installation.
- The Lycoming is fitted with a new Hartzell Q-tip propeller.

Was it worth all that extra effort . . . and an empty weight of 1400 pounds? Glen answers that with a rundown of his performance numbers. At his home airport in Northern California, elevation about 200 feet, with a full load of fuel — 52 gallons, himself (220 pounds) and no wind, he consistently gets off in about 270 feet. Throttling back to 65% power (never uses more, he says), he climbs out at 23 inches and 2550 rpm, indicating 125 mph and climbing at 500 feet per minute.

On the trip south to Watsonville, he timed himself between VORs and found he was knocking off a groundspeed of 185 mph at 9 gallons per hour. He was level at 9,500 feet.

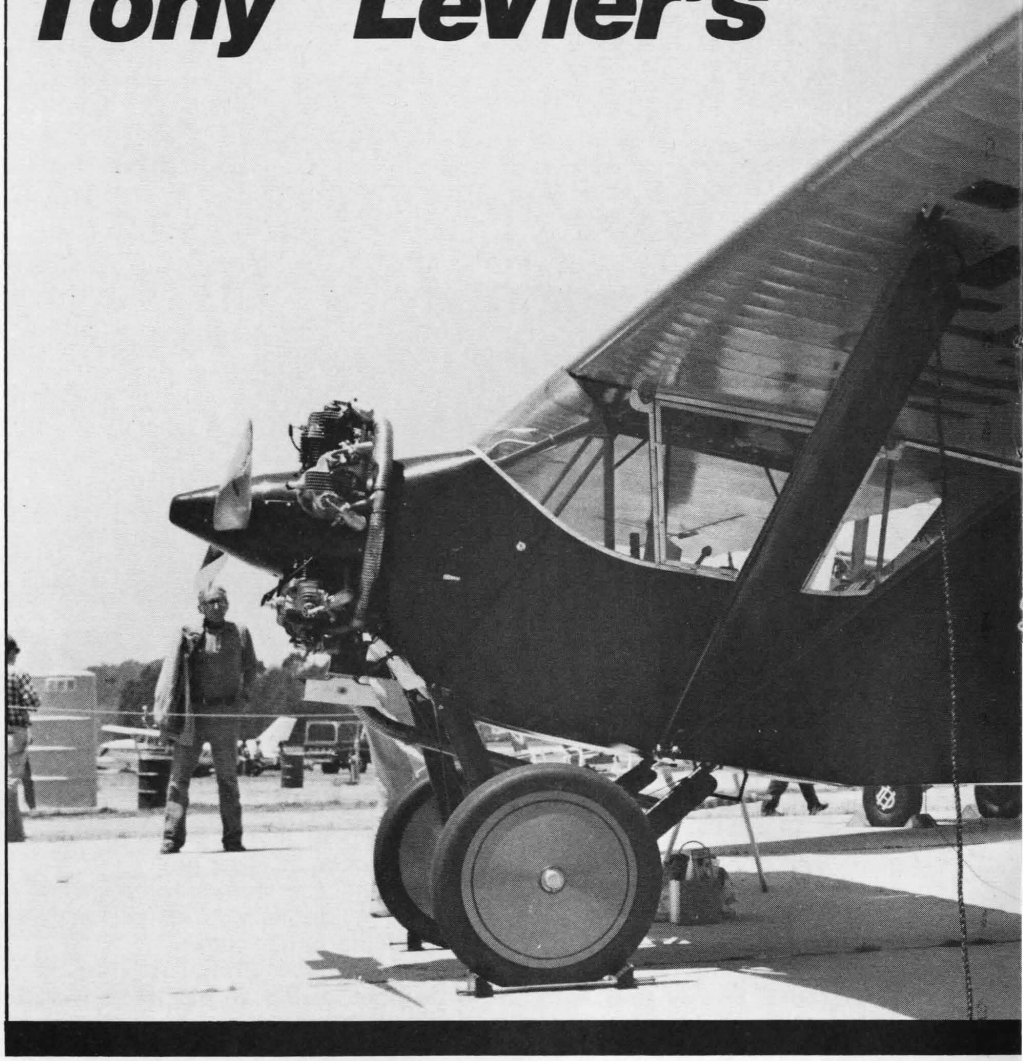
The airplane, Glen says, is fully controllable at 50 mph indicated — with flaps and some power. "You can maintain flight at 40 mph and maneuver, but it gets a little ticky down there," he volunteers. "You can land it at 40, but that's a precision operation. Normal landings at 50 mph are easy."

I asked about the Q-tip prop and Glen indicated he had installed it as a means of reducing noise. "Have you ever stood off from an airplane at a certain angle and heard the prop slap, slap, slapping — this doesn't do it. It's definitely quieter than a standard propeller. I've had other pilots tell me the airplane sounds 'funny' on take-off. They think it has a small engine instead of the 200 horsepower Lycoming."

Glen had put just over 200 hours on the airplane when he touched down at Watsonville and succinctly summed up his opinion of his handiwork by saying, "It has everything I wanted — it's a short field plane and a good cross-country plane."

'Nuff said.

Tony LeVier's Velie Mo



It boggles the mind to contemplate the spectacular flying career of Tony LeVier. Air racer in the glory days of the Thompson and Greve Trophies, Lockheed test pilot from the P-38 to the threshold of outer space . . . a life in the fast lane if there ever was one!

So what's this living legend doing these days? Ostensibly, he has retired to his home in La Canada, California . . . but if you've attended a West Coast fly-in in the past couple of years, you may get the bizarre impression that he's had so much fun over the past 50 years that he has simply decided to recycle himself back to the beginning so he can do it all over again!

One of the first airplanes Tony owned was a 1928 Model 70 Monocoupe . . . or "Velie Monocoupe" as they are commonly called today. This was in 1930 and at the very start of his adventures off Mother Earth. As a very young man he had great fun flying the 'Coupe (and a sistership) around the then-unpolluted Los Angeles basin . . . even ground looped his one day — to add further credence to the fiesty little two-seater's "mean" reputation.

The Monocoupe served its purpose, but soon was sold as Tony moved on to ever faster and more exciting airplanes. The 'Coupe's place would be taken by the likes of the Schoenfeldt Firecracker, P-38s, P-80s, T-33s, F-94s, F-104s, U-2s, SR-71s and other exotica . . . and, inevitably, retirement from his job of testing the wild wonders that regularly emerged from Kelly Johnson's fabled Skunk Works.

Retirement is a severe trauma for many — the beginning of a rapidly approaching end. For Tony it was simply another beginning — the acceptance of another challenge.

One Saturday in 1975 he attended a Los Angeles area pilots reunion and got into a conversation with antique airplane restorer, Rudy Hazuka.

"Guess what kind of airplane I have?", Rudy teased.

Tony casually admitted he had no idea . . . but his ears really perked up when Rudy said, "A Monocoupe." Excitedly he related the fact that he once owned a Velie 'Coupe and began to glowingly reminisce about the good times he had had in the ground looping little devil.

"What was its number?", Rudy asked.

"6730."

Rudy quickly fished a slip of paper out of his wallet and discovered to both men's amazement that his Monocoupe was . . . 6730!

"It's yours, Tony. I want to give it to you."

When Tony returned to his home the following day, he dug out his log books and looked up his old Velie Monocoupe. To his chagrin he found his airplane was 6724 . . . 6730 was the sistership he also flew during 1930. Honest guy that he is, Tony promptly picked up the phone, called Rudy and told him of his error.

"Doesn't matter . . . it's still yours."

Tony picked up the 'Coupe a few days later and began work on it immediately. He started with the Velie M-5 engine and spent the next year overhauling it. "Remanufacturing" would be a more appropriate term.

The five cylinder radial needed a lot of work . . . and a lot of new parts that simply weren't available. Fortunately, Tony had access to a machine shop — although he had to drive 80 miles per day to get to and from it. Starting from scratch, he made new valve guides, valve seats and even valves. He rummaged through the stock of his local Thompson Products dealer until he found valves close to the size needed for the Velie — close enough that they could be cut down to the exact dimensions of the originals. He also found a set of partially finished pistons and turned them down to the correct size. All the work involved in making these parts was more than worth the effort. Not only were they up to new specs, they were made of modern metals — much more durable than the 1928 originals.

Tony also made a number of spe-

nocoupe

cial bolts for the Velie, overhauled the carb and the original Swiss-made Scintilla magnetos.

"It was beautiful when it was finished," he recalls. "You couldn't tell it from one that had just come from a factory."

With the satisfaction he derived from the completion of the engine . . . not to mention the confidence gained . . . Tony took on the fuselage. It would be 3½ years, however, before he could stand back and admire his work on it.

The airframe was a true basket-case and required quite a bit of new tubing, fittings, all new fairing strips and, of course, replacements for all bolts, bushings, etc. — the usual down-to-bare-metal-and-out-again restoration job. He got a break on just a few items — wing struts, for example. The Model 70 had round tube struts with light fairing frames over which a fabric covering created a streamlined, air foil shape. They would have been a time-consuming pain-in-the-backside to build had they been bad — but, mercifully, were usable after a good cleanup.

The landing gear came in for some major changes. The old spreader bar and floating axle main gear literally reeks of ancient airplane charm, but has a tendency to place crosswind landings on pavement into the category of a Kamikaze operation. Tony wasn't going through all that effort and expense to create a museum piece — he intended to fly the beast, so it had to be manageable in today's airport environment. That, of course, meant brakes and a steerable tailwheel (to replace the original tail skid).

Locating a set of lightweight disc brakes (go-cart), Tony proceeded to mount them, along with a drag brace to keep the axle from rotating. The brakes are actuated in a manner common to European lightplanes of the 1930s — and even a few U. S. types of that period (such as the Ryan SCW). A short lever juts forward from under the seat; pull up on it and you have braking on both wheels for run-up or as a parking brake. Under way, pull up on the lever and press on a rudder pedal and braking results on that wheel only . . . in other words, differential braking. Once you are moving fast enough that the rudder is effective, let go of the lever and you have full use of the rudder without any braking action. The system is very easy to become accustomed to and is simpler to install than pedal mounted toe brakes.

Since it wasn't an original equipment item, the FAA was hesitant to approve the brake installation . . . that is, until Tony presented them with drawings and a very elaborate engineering report. He's still not certain whether it was the technical brilliance or the sheer volume of the report that did the trick, but, at any rate, it won a stamp of approval for the brake installation!

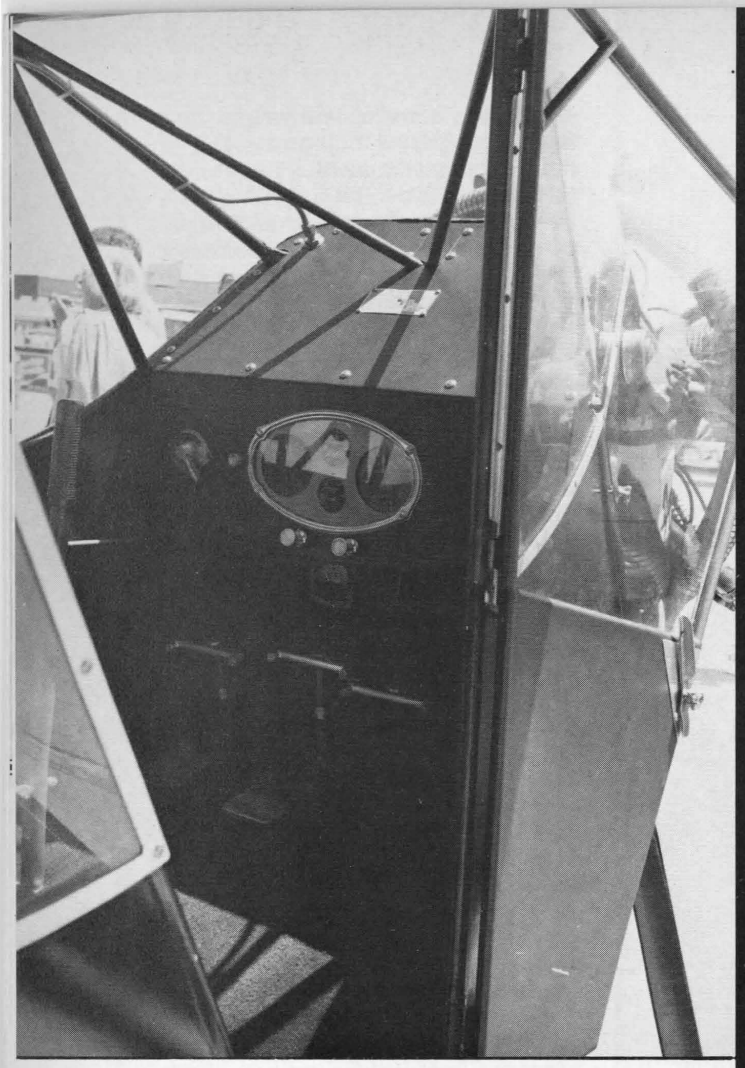
Another item that shook the feds was the instrument panel. There were no modifications here — just a genuine, straight-out-of-1928 panel containing four (only) gauges: tach, oil pressure, oil temperature and altimeter. That's right — no air speed indicator and no compass, both now required by FAA. There was a little official hemming and hawing, but after Tony pointed out that this was an original Model 70 Monocoupe instrument panel, in accordance with U. S. Government Approved Type Certificate #70 issued in September of 1928, it, too, was allowed.

The 32 foot one-piece wing was a free ride all the way for Tony. He had turned it over to Bill Elliott and his Mt. San Antonio College aviation students to restore as a class project. The wood was in bad shape, but the kids gave it the old college try. It was too far gone, however. One day Bill called Tony and asked if he minded too much if they just built him a completely new wing.

"Hell, no!" was the quick reply.

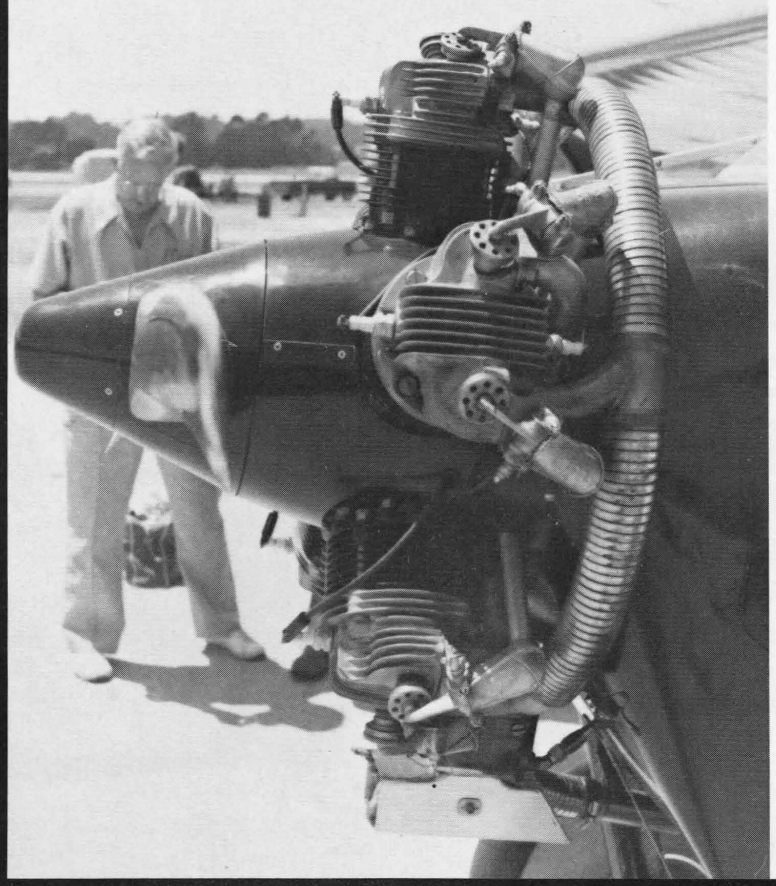
Tony ordered spruce, new tie rods, fabric and dope and the students did the rest, finishing up about the time he was attaching the last PK screw to the fuselage.

The 'Coupe's new suit of Stits Poly-Fiber was finished in the standard factory colors — black fuselage



A "full panel" — circa 1928.

The Velie M-5 received ATC No. 4 on June 22, 1928 — with a rating of 45 hp at 1750 rpm. This was later increased to 55 hp and in 1930 was boosted to 65 hp at 1900 rpm. The M-5 has a displacement of 250 cu. in. and a 5.2 to 1 compression ratio. Dry weight is about 240 pounds. It's a little thing — with a diameter of just 32.375 inches. The prop is by Ole Fahlin.



and vertical tail, International Orange wings and horizontal tail. A sign painter was employed to emblazon the sides of the fuselage with "The Monocoupe" in the characteristic script that was a factory trademark.

Normally, when I am interviewing a homebuilder or restorer, I ask about the first flight, because most pilots like to wax eloquently about the thrills and personal satisfaction of that dramatic moment in their lives. I know it was also a moment of pride and satisfaction for Tony, but I figured it would be just a wee bit presumptious to expect the man who made the initial flight of the Lockheed F-104 to experience too many thrills launching forth behind a mighty 62 horsepower Velie . . . so I didn't ask!

I was very interested, however, in his observations on the performance and flight characteristics of the Velie Monocoupe . . . for two reasons. First, all Monocoupes have reputations as "mean" airplanes — "ground looping beast", "spins like a top", "blind as a bat", etc., etc. Much of this is hangar session bravado, embellished with each retelling to enhance the image of the 'Coupe owner spinning the tale . . . but there is an element of truth involved. They were touchy little airplanes compared to the big old biplanes of their day, but hardly the "killers" some claimed them to be. There are a lot of later models (90As, 90AFs and 90ALs) around so that objective pilot reports are available on them . . . but who do you know who has recent Velie time? That's the second reason — what better source could one hope for than Tony LeVier, the test pilot's test pilot?

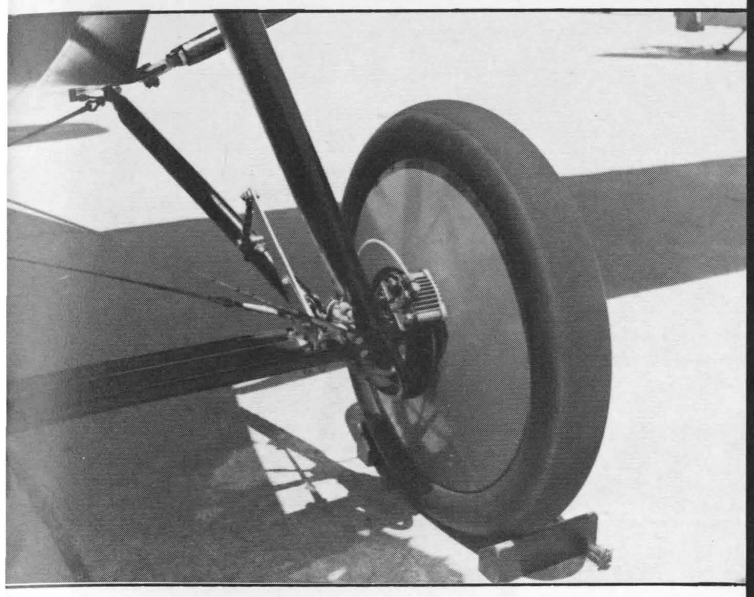
I thought I'd use a tactful approach and let him know I was aware of his background — you know, sort of put things in their proper perspective by saying something like, "Well, Tony, since you owned a Model 70 in 1930 and then went on to a half century of flying the world's most advanced aircraft, how do you view the airplane's flight characteristics now as compared to way back then?"

"It doesn't seem to be any better than it was 50 years ago," was his straight-to-the-bone reply. Sure popped my bubble!

"Naw, it's a peculiar little airplane," he continued after we had stopped chuckling. "It rides through turbulent air better than a modern airplane, believe it or not. That thing hits bumps but just sails right on through without pitching or anything like that. Pitchwise, it is just deadbeat. The directional stability is not so good — but it never was. There is plenty of rudder and the ailerons are heavy, but responsive. It is noisier and rougher than I remember. I always thought the Velie was a smooth engine . . . so I'm not sure if this one is rougher than my old one or if it's just the fact that my calibration has changed over the years. I've been flying some pretty smooth airplanes recently, so maybe that's it . . . but, anyway, it seems to be running all right."

I asked him if he had spun the airplane — he hadn't, but had done a full stall series. "If you stall it in a turn it will go either way, but it has a good feel," was his considered opinion.

"What about performance?", I queried.



Tony's adaptation of go-cart brakes to the Monocoupe. Note the drag brace to keep the axle from turning. The slick tires came from Universal Tire Company in Pennsylvania — two tires, two tubes and liners for $600.

Tony LeVier, winner of the Greve Trophy in 1938 and Lockheed's top test pilot since the 1940s. Now retired, he flies his Monocoupe on the West Coast fly-in circuit.

"It doesn't seem to be any better than it was 50 years ago!"

I had to ask, didn't I?

As I recovered from that zinger, Tony allowed as how the 'Coupe was capable of 100 mph, wide open, and 85 at cruise. "Actually, I'm prop limited," he said. "At full power, the engine overspeeds and I don't want to do that. What I've got is obviously not a cruise propeller . . . but it gets me off good and I can climb and get over mountains. I just don't turn it over 2,000 rpm."

The biggest kick of the whole interview for me was listening to Tony tell how much fun he was having navigating around California strictly by pilotage. Now, mind you, the remarks you are about to read are by a man who has flown with celestial and inertial guidance systems so advanced the military still isn't talking about them.

"Yeah, there's no compass — but I can navigate in this thing. All you do is speed, time and distance . . . air pilotage . . . you look at the map and look at the ground and identify . . . and go! I'll bet you money that if I can see far enough ahead, I can fly just as great as somebody with their fancy gear."

"I don't have a radio in it — I call ahead to towers and ask if I can come in. They say yes — they want to see the airplane! I come in downwind, waggle my wings, get a green light and land. In the long run it's cheaper than if I go out and buy a thousand dollar radio!"

You're our kind of guy, Tony!

When he touched down at this year's Watsonville, California Fly-In, Tony had put about 40 hours on the Monocoupe in the two years it had been flying. The trip up from Cable Airport in the Los Angeles basin had taken 4 hours and 50 minutes.

"The horrible thing about flying the airplane is the cost," Tony moans. "Every time I land, it costs me 18 to 20 dollars worth of gas!" Nevertheless, he burned his share at Watsonville. The afternoon air shows were led off by a parade of antique airplanes, the old birds taking off in order according to age. First off each day was Jim Nisson's 1918 Curtiss Jenny, then Tony in his 1928 Monocoupe. He made it look easy, zipping around the pattern and then greasing it on with a neat wheel landing . . . not that I expected anything less from the man holding that stick.

Tony LeVier is one of our nation's truly unique and valuable resources. For the past 40 years he has quite literally been putting his life on the line to push out the leading edge of aviation technology. He's had all sorts of close shaves — like the time he had to claw and kick his way out of the cockpit of the XP-80A after the entire tail had violently separated from the rest of the airframe at over 500 mph! I think it is absolutely marvelous to see Tony at fly-ins having a great time flying his Monocoupe and showing it to his fellow sport aviation buffs. After giving so much to aviation for so long, he is more than due the accolades and attention he is getting these days.

I hope he wears out a whole bunch of Velies before he decides to park the 'Coupe.

A LITTLE MONOCOUPE LORE

Tony LeVier's 1928 Monocoupe 70, N6730, Serial No. 133. FAA currently carries 6 Model 70s on its records — and, amazingly, 3 of them are consecutive serial numbers: NC7820 (Ser. 132) owned by J. R. Geist of Wichita; Tony's #133; and NC6731 (Ser. 134) owned by R. Harding Breithaupt of Reading, PA.

One of the proud names of U. S. civil aviation, Monocoupe was the creation of a small town advertising man and a young farmer who whiled away long Iowa winters designing and building airplanes.

Don Luscombe bought a surplus Jenny after returning from service in World War I, but found it to be too slow and drafty for his liking. He dreamed of a fast little airplane with a fully enclosed cabin so normal street clothes could be worn when flying. He considered helmets, goggles and long white scarves to be a lot less romantic and a lot more of an inconvenience than did most of his contemporaries. With no such airplane available in the mid-1920s, Luscombe decided to form a company and build his own. He managed to get a handful of Davenport, Iowa businessmen to kick in $5,000 to form The Central States Aero Company. That was in October of 1926.

Luscombe then began casting about for someone to build his dream plane — and ultimately hired Clayton Folkerts, a self-taught pilot and designer/builder of lightplanes. Given a general idea of what Luscombe had in mind (there were no plans), a stack of tubing and some NACA air foil reports, Folkerts set to work. After teaching himself to weld, he began cutting and fitting and 4½ months later rolled out the original Monocoupe. It was a two-place, side-by-side, high wing monoplane powered by a 5 cylinder Detroit Air Cat radial engine, optimistically rated at 60 horsepower at 1800 rpm. It flew for the first time on April Fool's Day of 1927 — just a matter of weeks before Charles Lindbergh staggered off a muddy field bound for Paris.

Folkert's little creation flew well right from the start, so a factory was rented in Bettendorf, Iowa to produce a slightly refined version. (The building was, of all things, an abandoned Billy Sunday tabernacle!) The Monocoupe was an instant success — with orders flooding in far faster than they could be built. The worst problem was engines. Eddie Rickenbacker's Detroit Aircraft Engine Corporation, maker of the Air Cat, was in financial trouble and bit the dust shortly after the 'Coupes were put into production. A number of other engines were tried, with little success, so in desperation Don Luscombe approached a local auto manufacturer, Willard L. Velie, Sr., proposing that his company build an aircraft engine. Velie agreed and promptly set his shop to work copying the Air Cat. They had the first one (re-named the Velie M-5) running in less than a month. The copy was so blatent that LeBlond, which had bought the rights to the Air Cat, sued for patent infringement — and won.

The association with Velie may have been more than Don Luscombe bargained for, because Central States Aero was soon to be absorbed by Velie Motors and renamed Mono Aircraft, Inc. Luscombe, however, stayed on as president.

The first few Monocoupes were built and sold before aircraft were required to be certified in the United States. The Air Commerce Act of 1926 changed all that, however, so Luscombe had to hire engineers to come in and apply the slide rule to Clayton Folkerts' homebuilt and submit the necessary paperwork to the government. Approved Type Certificate #22 was issued in January of 1928 and the company promptly dubbed the airplane the "Model 22". Luscombe believed governmental approval would be a great sales aid, so the model number was selected to call attention to the ATC. Eight months later, in September, an improved version with the new Velie M-5 engine was assigned ATC #70. This, of course, became the Model 70.

With the Lindbergh mania in full swing, the 22s and 70s sold like crazy. For some reason, however, this fact has become obscured with the passage of time. When latter day antique buffs think of civil aviation of 1928 and '29, they think Travel Air, Waco, America Eagle and the like. Few today realize that Monocoupe outsold them all — the factory bragging that nearly 90% of the lightplanes sold in the U. S. in 1928 were Monocoupes. In all, some 370 Velies (Models 22, 70 and the split-geared 113s) were built — more than any other model of Monocoupe ever to be built.

The Monocoupe was the first high wing, two-place, side-by-side lightplane to be certified and today we recognize it as the progenitor of what would become the most popular lightplane configuration ever conceived. Taylorcrafts, Luscombes, Aeronca Chiefs, Cessna 120s and 140s and many, many others would carry on the tradition for decades to come . . . and it's still with us in the form of the Cessna 152.

The Monocoupe company would go on to build progressively more powerful and refined aircraft during the 1930s and briefly after World War II. Always a financially troubled concern, it finally came a cropper in Melbourne, Florida in 1950. The type certificates, a few drawings and some pieces of factory tooling were donated to the EAA Aviation Foundation a few years ago.

Don Luscombe left Monocoupe in 1933 and formed his own company in West Trenton, New Jersey. He sold out in 1939 but the aircraft bearing his name were built until 1960. Luscombe died in 1965.

Clayton Folkerts went on to design and build a very successful series of racing aircraft during the 1930s, the most notable of which was the Jupiter, in which Rudy Kling won both the Greve and Thompson trophies in 1937. Folkerts joined Waco as a project engineer during World War II and retired to his farm in Iowa in 1948. He died in 1964 at 67.

The EAA Air Museum contains the best collection of Folkerts/Luscombe/Monocoupe aircraft anywhere — Folkerts' 1928 geodetic parasol, Monocoupe 113, 110, 90A, 110 Special and a Luscombe Phantom.

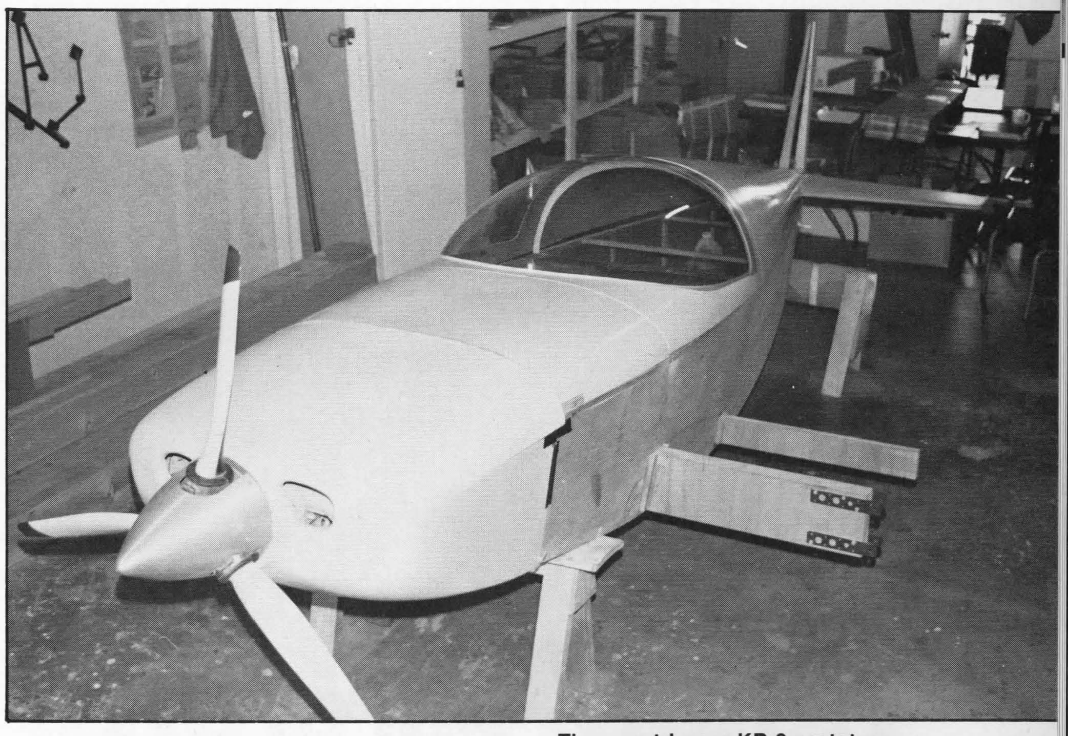
Sportsman Pilot Visits...

Jeannette Rand

After the death of her husband, Ken, Jeannette Rand stepped in and assumed management of Rand/Robinson Engineering. For a time, her efforts were understandably taken up with learning the business and the day-to-day routine of shipping out kits for the popular KR-1s and 2s. Recently, however, she has begun devoting time to product improvement. New, high quality pre-molded parts are now available and work is progressing on the long-planned tri-gear version of the KR-2 . . . the prototype of which you see pictured here.

Despite the fact that, by homebuilt standards, they have been around for a while now, both the KR-1 and KR-2 are still very popular designs. An astounding 12,000+ sets of KR-1 and KR-2 plans have been sold and an estimated (according to the KR Newsletter) 3,000 are under construction. One explanation is the fact that the airframe kits are among the least expensive, and they are relatively quick and easy to build.

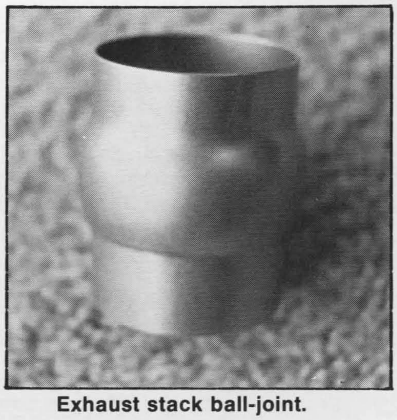
New, much-improved plans for both the KR-1 and KR-2 are available for $55.00 each. An info pack is $1.00 plus a SAS envelope . . . from Rand/Robinson Engineering, Inc., 5842 K McFadden Ave., Huntington Beach, CA 92649.



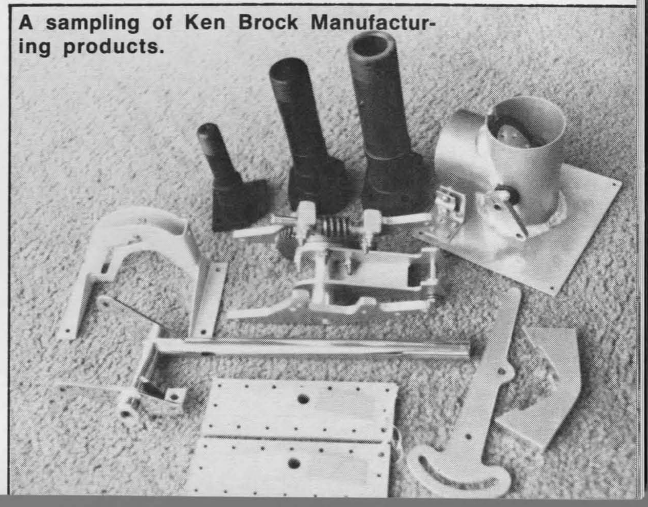
The new tri-gear KR-2 prototype.

Ken Brock Mfg.

Ken Brock Manufacturing is, in a sense, one of sport aviation's best kept secrets. Everyone knows its founder and president, Ken Brock . . . his gyroplane performances are legendary. But few other than T-18 and Rutan builders have an inkling of the extent of his metal stamping/parts business. As an example, one day while I was there, a well known designer was making his first tour of the plant. His reaction was one of astonishment. He had no idea, he said, that such a capability existed to produce homebuilt aircraft parts . . . or even, he confessed, that the homebuilt "industry" had grown so large that it could support such a facility.



Exhaust stack ball-joint.

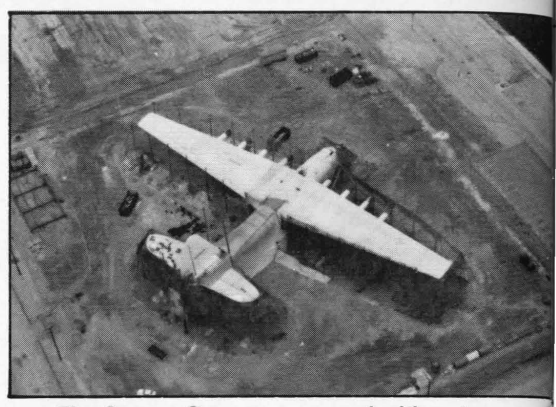


A sampling of Ken Brock Manufacturing products.

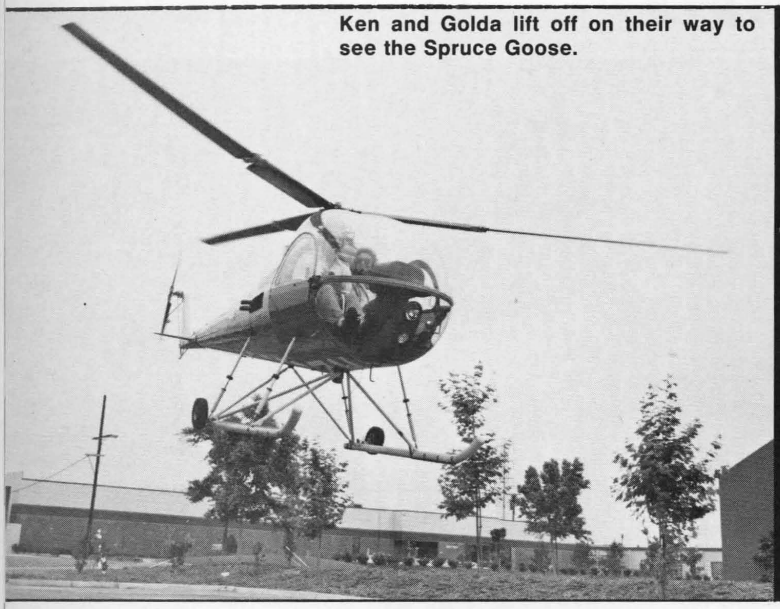
With the equipment and highly skilled personnel to turn out all sorts of stamped, machined and welded parts **in large quantities**, Ken Brock Manufacturing won't be a "secret" much longer. With the huge numbers of orders being received by many designers, such a plant will be a godsend.

Ken, incidentally, makes a number of things that are universally useful in aviation — not just parts for specific designs. Exhaust systems, for example, and of particular note, ball joints. Cracked exhaust pipes are the bane of aircraft owners — but with one of Ken's ball joints welded into a stack, the problem likely is licked. Invest $2.00 in his catalog and you'll find a number of such goodies. Write Ken Brock Manufacturing, 11852 Western Ave., Stanton, CA 90680.

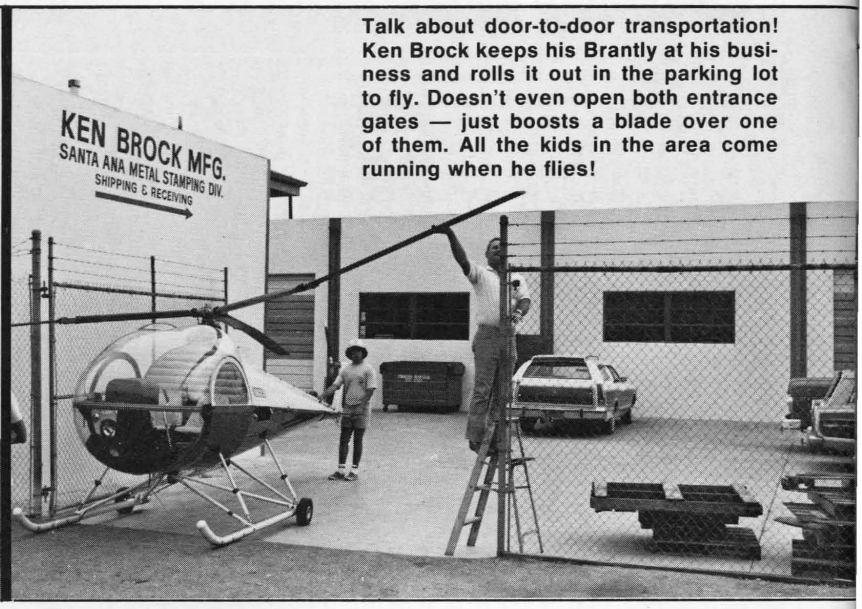
The real blast at Ken's, however, was his new toy, a Brantly B-2B helicopter. He keeps it at his business, rolling it out into the parking lot for take-off! We launched one evening, flew down to the coast and followed it up to the Queen Mary and the Spruce Goose. With its 3-blade rotor, the Brantly is very smooth . . . surprisingly so. When the LA basin is smogged in, a helicopter is the only way to fly there. It is anytime if sightseeing is your game.



The Spruce Goose — covered with netting to "keep out the seagulls".



Ken and Golda lift off on their way to see the Spruce Goose.



Talk about door-to-door transportation! Ken Brock keeps his Brantly at his business and rolls it out in the parking lot to fly. Doesn't even open both entrance gates — just boosts a blade over one of them. All the kids in the area come running when he flies!

Rutan Aircraft

We arrived in Mojave via Defiant just after Dick Rutan had departed for Alaska, from whence he would launch on his straightline distance record flight to Grand Turk Island the following week. Burt gave us the grand tour of his facilities — but all his new projects are in the "classified" category . . . so, we'll have to wait until later issues to tell you about them. One very interesting thing I can discuss is his Apple II Computer. Burt has created a computer program for canard/tandem wing aircraft with which he can predict performance and, to a degree, flight characteristics. It's the only such program in existence, to my knowledge, and, of course, like all such electronic wizardry, its real effectiveness is almost totally dependent on the knowledge and interpretive skill of the operator. As the recognized Ultimate Guru on canard configurations, Burt is already doing a brisk consulting business checking out the designs of other people.

A big impending program at Rutan Aircraft Factory is the certification of the Defiant. Burt has definitely decided to do it himself and it's going to be quite an operation — involving 40 or so employees, new buildings, etc.

While at RAF, we had a chance to look over Mike and Sally Melvill's new Long-EZ. It is a beauty . . . and has the nicest intercom/stereo system I've ever listened to. It's a Sigtronics system with David Clark ear phones.

Cockpit of Mike and Sally Melvill's new Long-EZ, N26MS.

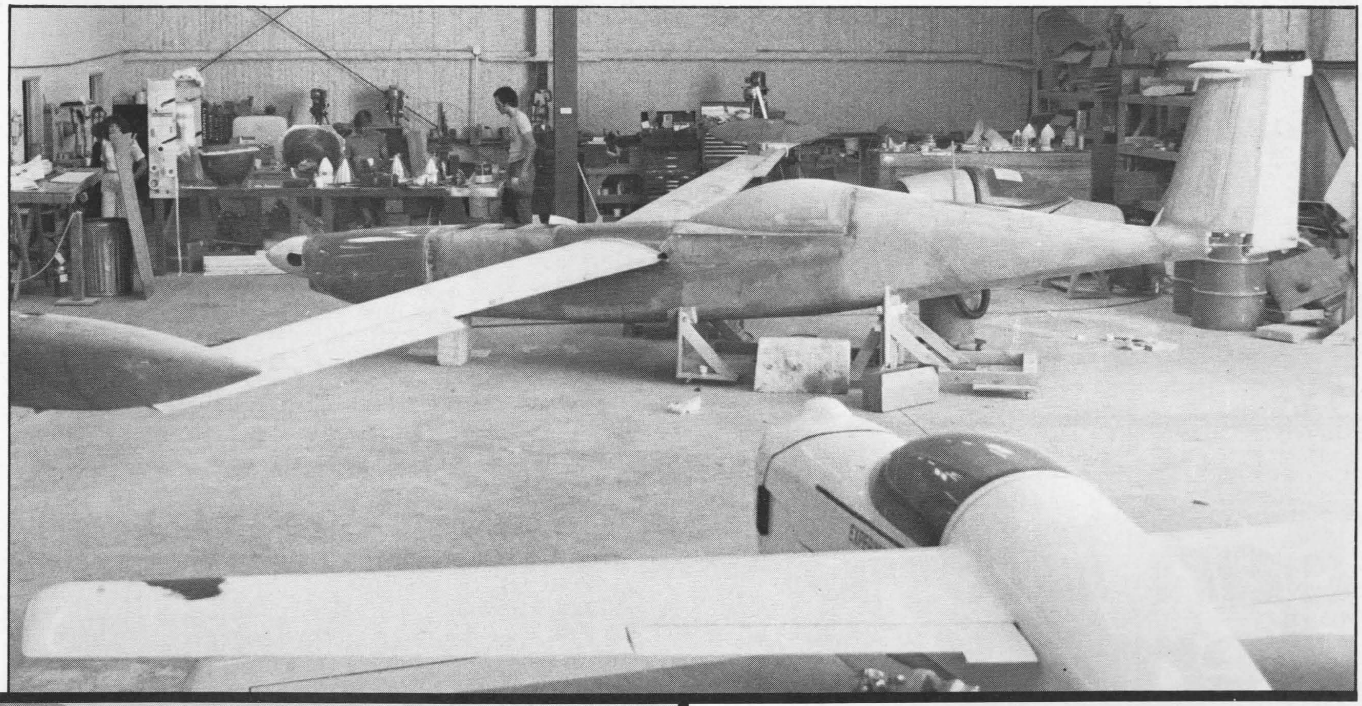
Quickie Aircraft

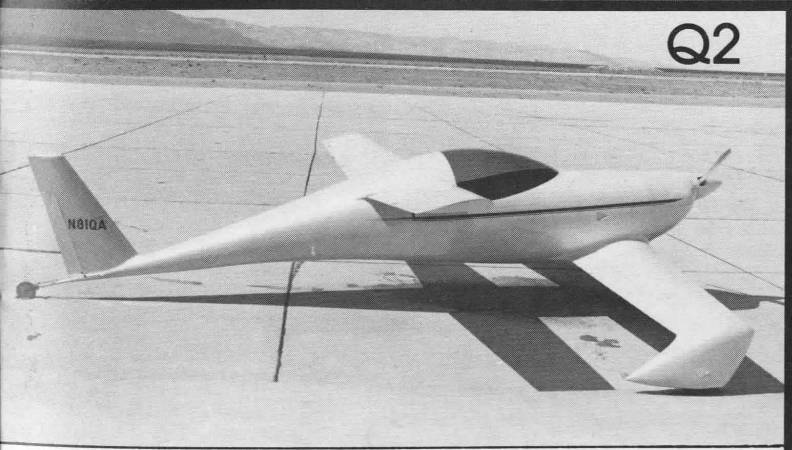
It was just a short jump down the ramp at Mojave to Quickie Aircraft. Tom Jewett and Gene Sheehan greeted us and led us into their big new hangar where the Big Bird was nearing completion. As you can see in the picture, it is a sailplane derived (Nugget wing) machine able to leap huge chunks of real estate in a single bound. Every hollow space in the airframe holds fuel, it seems, and the plumbing required to get it all to the engine would drive the average household plumber to distraction. What impressed me most, however, were the graceful, almost delicate lines of the machine. These special purpose airplanes aren't supposed to be pretty, but this one is. It should be flying by the time you are reading this and may well have copped its first records by late Fall.

Later, we were taken down the street to Fred Jiran's Composite Development Corporation to see Q2 fuselage sections being molded. Work was in progress when we arrived, so we were able to observe the process. A sandwich of glass/epoxy and foam and glass/epoxy is laid up and then a vacuum bag is fitted over the whole shooting match. When activated, it squeezes out all the excess epoxy (which is soaked up by a sheet of burlap) and forces the sandwich to conform precisely to the shape of the mold. Uniformity of shape, weight, strength and surface finish are the justifications for the expense of the molds . . . not to mention the speed with which they can be popped out. A very impressive operation — and a very necessary one, considering the current demand for the Q2.

From there we drove over a couple more streets to Garry LeGare's new operation. He is handling all non-USA sales of Q2s and has decided to locate in Mojave. We found him installing the battery in his new Q2 and was, in fact, expecting to fly late that very day.

Tom and Gene were expecting theirs and Gary's Q2s at Oshkosh — and possibly some customer-built versions. The molded fuselage Q2 is a beautiful airplane with a sensuous shape that undoubtedly will seduce legions of homebuilders in the years ahead.





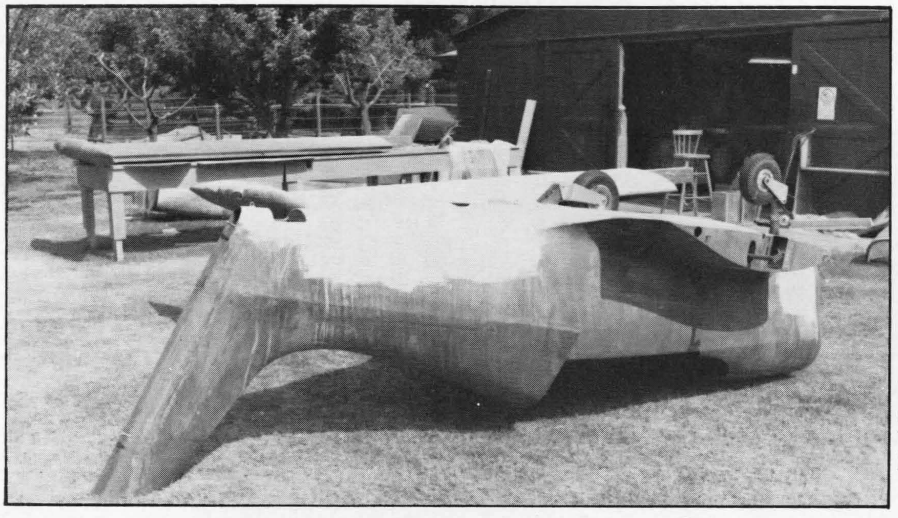
Garry LeGare's Q2 — believe it or not, it was flown later the day this picture was taken.

Polliwagen

When we dropped in on Joe and Lucy Alvarez, their back yard skunk works looked like an outdoor factory. Polliwagen molds sit all around, many with just-laid-up parts still curing on (or in) them. (Yes, fellow Easterners, those Californians live and work outdoors like that . . . even in the winter. **Disgusting**, isn't it!!) Joe and his employees were hard at work finishing up a new Polliwagen to bring to Oshkosh. It employs a number of improvements — including larger tires to permit dirt and grass field operation. We were able to look over the new engineering-type drawings that henceforth will be included in the Polliwagen plans package (now $75.00). They are very well done . . . and are huge! (You won't even need your glasses!)

Polliwagen plans are going like hotcakes these days and Joe is in great demand on the seminar circuit. He and Lucy are working very hard to get their program into high gear and to a point where Joe can have time to get back to the drawing board. He has a lot of new ideas spinning around in his head that he dearly wants to see on paper . . . and in the air.

Polliwagen's Ed Moss and his Flying Flea parts. He's building it from Henri Mignet's book.



No, it's not an accident scene — just a typical California outdoor workshop. This new Polliwagen was having its landing gear installed.

San Diego Aero-Space Museum

When the famed San Diego Aerospace Museum burned to the ground several years ago, many feared the institution, itself, had died with its charred artifacts. Not so. The disaster triggered a wave of fund raising, donations of aircraft and aviation memorabilia, building of full scale replicas . . . so that today the museum has not only bounced back but, in many ways, is better than it was in its original state.

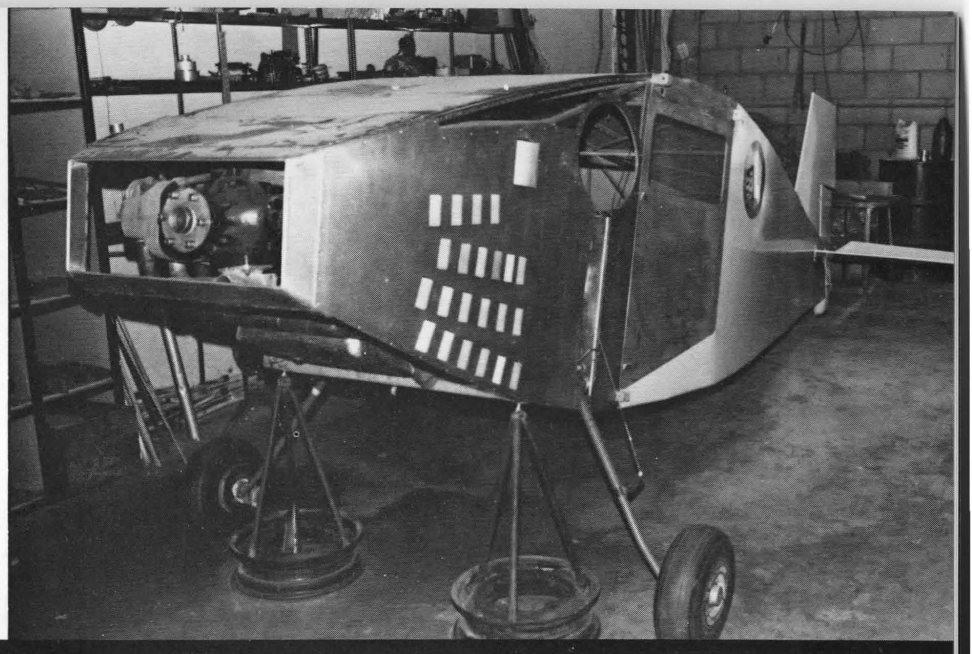
First, the museum's new home, the old Ford Rotunda, is infinitely better suited for the display of aircraft than was the old building. Built originally for a transportation exhibit, the Rotunda has the high ceilings to permit suspension of aircraft and the circular layout is a natural for showing a progression from the pioneer period to the present.

A host of excellent replicas are centerpieces for the new collection — a Spirit of St. Louis greets you in a spectacular circular entrance foyer, and as you progress through the museum, you encounter a Wright Flyer, Ryan M-2, Ryan Brougham and the Wee Bee — all brand new. In between are aircraft of World War I, the barnstorming era, World War II and the Korean War. A number of Smithsonian aircraft are on loan — notably Waldo Waterman's Aerobile. Homebuilts are represented with a Miniplane, Pitts, the Wee Bee and Louie Langhurst's scaled down Stuka.

The Hall of Fame section is particularly well done, with original paintings of each honoree.

The San Diego Aerospace Museum is located in famed Balboa Park, right smack in the center of San Diego. It's easy to get to via the freeway system . . . and well worth your time to visit.

Projects



Bob Hawley
Long Beach, CA

Bob Hawley's retractable geared Cougar. The wheels fold straight up into wells behind the windshield. The engine is a turbo-charged Lycoming 0-320. There are all sorts of technical innovations in this bird, plus some very nice metal work.

George Leider
Lakewood, CA

George Leider's Pitts Special. Super workmanship and a fuselage full of detail improvements by an experienced builder. George is a T-18 specialist, having built a number of them. He had two in his shop the day we were by. This Pitts is going to win a room full of trophies.

Etc.

Just outside the motel on the Bakersfield, CA airport is this highly modified Republic F-84F — billed as the "world's fastest prop-driven airplane". It's fitted with a turbo-prop engine and an experimental supersonic propeller. Amazingly, with a top speed of 670 mph, it was 20 mph faster than the pure jet version!

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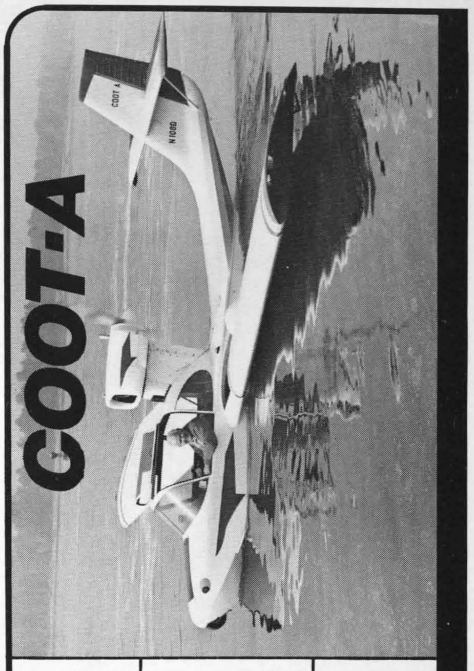

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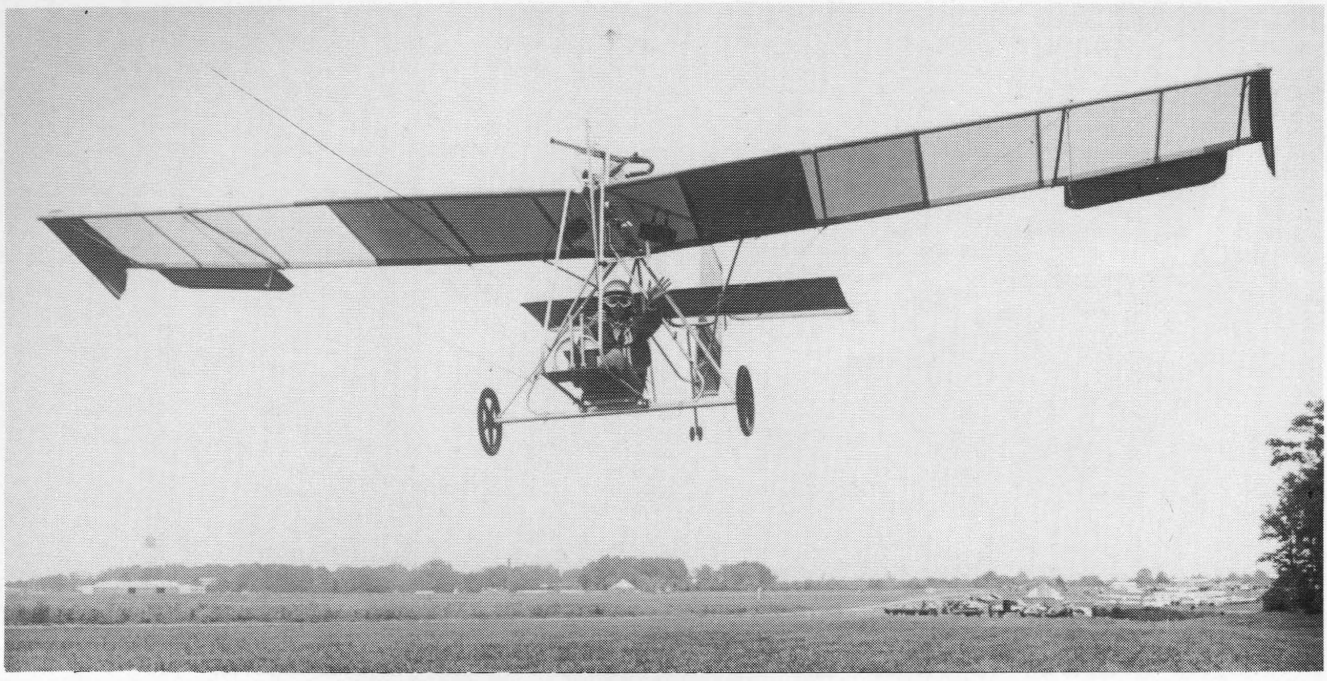

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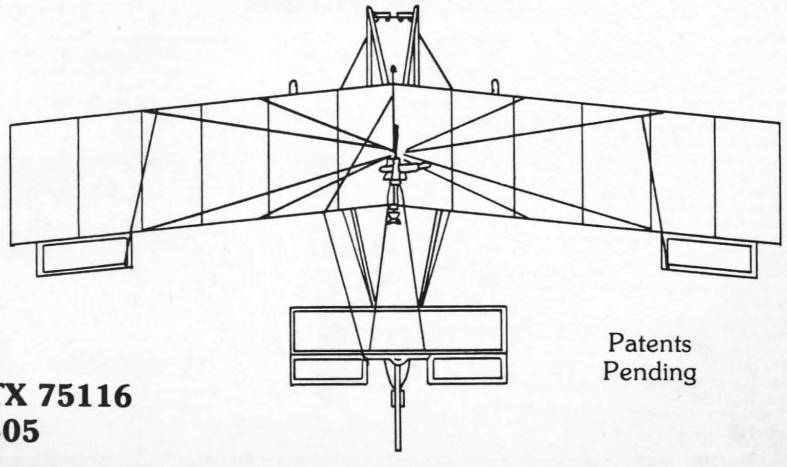

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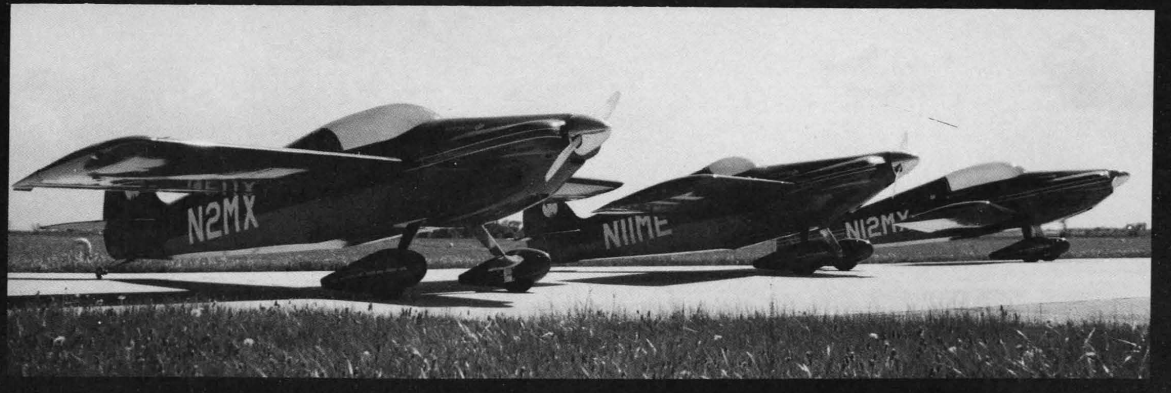

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